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Posthumanism and the Massive Open Online Course: contaminating the Subject of Global Education.

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Declaration

I declare that this work has been composed solely by me and that it is my own work. The work has not been submitted for any other degree or professional qualification.

Abstract

The Massive Open Online Course (MOOC) has surfaced as one of the most prominent developments in digital education in recent years, attracting significant media attention and involving some of the world's elite universities. MOOCs are fully online courses that attract high numbers of enrollees, often in the tens of thousands, and are typically publicised as offering free participation. To date, critical analysis of the MOOC has been rare in the academic literature: this thesis will address the need for more nuanced discussions by critiquing and theorising MOOCs from the position of critical posthumanism. Posthumanist challenges to the foundationalism of the humanist subject have been well established around ecological (Pedersen 2010, 2011, Braidotti 2013), cultural (Badmington 2000a, 200b, 2003) and philosophical (Pepperell 2003, Fuller 2010) agendas, however this approach is underrepresented in digital education, and largely absent in studies of the MOOC. Thus, the MOOC project has tended to assume problematic and uncritical forms of humanism, maintaining an orthodox educational position in a field that claims innovation and disruption. The theoretical framework of critical posthumanism will be utilised to highlight the limitations of the humanist subject, and suggest a value in looking beyond this framework as the underlying rationale for MOOC education.

This thesis draws upon discourse analysis, visual analysis and a post-qualitative methodology that challenges the assumption of a knowing subject in social science research to consider a broad view of the MOOC, as well as a focussed examination of two specific courses. Firstly, the corporate promotion of MOOCs is shown to tend towards a colonialist orientation that assumes a universal desire for education, and adopts a strategy of maximising global reach. This strategy is underpinned, not by the quest for territory, but for the personal data of MOOC participants. Secondly, emerging research and theories of learning that are attempting to understand the behaviours of MOOC participants are suggested to adopt normative views of participation that prohibit difference and establish particular routines as the dominant and privileged form. Thirdly, orthodox notions of authentic and sedentary educational space will be examined and shown to pervade this emerging online format, working to maintain, rather than counter, elitism and inaccessibility. Finally, notions of hybrid educational space, contaminated communities and monstrous (re)articulations of the human subject will be drawn on in suggesting alternative ways of viewing and engaging with the 'massive' education of the MOOC.

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Chapter 1: Introduction

This introduction will outline the content, structure and rationale of the thesis, as well as provide a preface to the Massive Open Online Course (MOOC) which will be explored in subsequent chapters. Firstly, I will summarise the key argument and contribution of the thesis, before outlining the role and substance of each chapter in making this case. This will suggest how I perceive the various chapters to work together in a cohesive and critical exploration of the MOOC project. Secondly, I will present a detailed introduction to MOOCs, outlining their beginnings, developments, and the principal organisations involved, as well as reviewing key literature in this relatively recent field.

Summary of the argument

I suggest that the emerging project of the MOOC routinely defaults to uncritical notions of the humanist subject as the underlying rationale for the offer of open education. However, the framework of the humanist subject, encompassing ideas about a universal human condition, rational behaviour and autonomy, significantly limits the practice and pedagogy of the MOOC. While early experimental versions of the course format were underpinned by suggestions of a theory of learning called ‘connectivism’, and the later more prominent offerings appear to have concentrated on the scaled educational broadcast, a consistent theorisation of the kinds of human beings both constituting and being constituted as learners has been distinctly absent. As such, MOOC developments have habitually defaulted to problematic and uncritical forms of humanism as a basis for their rationale and pedagogical approach, involving assumptions about a universal humanity and essence that appear to gloss over the complexities of a globally diverse education. The corporate MOOC strategy presents a façade of humanist universalism instead of active engagement with diverse participants, while the ‘connectivist’ approach constructs a mask of personal empowerment and technology instrumentalism rather than acknowledging our co-constitutive relations with the digital. MOOC participants are routinely presumed to be rational and autonomous learners, desperate for an elite Western education, empowered by technology, and able to self-organise into cohesive and harmonious communities. This will be shown to be not only fabricated as a totalising claim on a universal learning subject, but also limiting as the ideals and aims of an affirmative and emancipatory project of education. Therefore, while the high-profile promotion of the MOOC has claimed revolutionary technological innovation,

and a major disruption of existing educational structures, the project maintains a fundamental orthodoxy in its presumptions of a uniform and transcendent human subject.

This thesis draws on a now decades-old critique of humanism from within philosophy and critical theory in order to propose critical posthumanism as a theoretical framework with which to look beyond the limitations of the humanist subject in the discourses and material practices of the MOOC. Posthumanist challenges to the foundationalism of the humanist subject have been well established around ecological (Pedersen 2010, 2011, Braidotti 2013,), cultural (Badmington 2000a 200b, 2003, 2004) and philosophical (Pepperell 2003, Fuller 2010) agendas, however this approach is underrepresented in digital education, and largely absent in studies of the MOOC. Within this broad, umbrella term for a theoretical domain which looks to traverse the dualisms of humanism and anti-humanism, I will draw upon postcolonial intersections with posthumanism, spatial and mobilities theory, and a critical examination of the ‘monstrous’, in order to explore an approach to education that values the non-subjective. The intention here is not to reassert an alternative and universal ‘posthuman subject’, but rather to foreground the hybrid entanglements through which MOOC participants might be considered to engage in persistent and transformative relations with each other, the vast array of technologies involved, and the material world of this far-reaching global endeavour. It is with such critical approaches to subjectivity that I suggest education might be able to productively move beyond its grounding in the idea of a rational, distinctive and privileged human subject, and view its purpose as something other than the progress and perfectibility of ‘Man’, to the detriment of all other living things and vibrant matter (Braidotti 2013, Bennett 2010).

Outline of thesis

In chapter 2 I will set out the theoretical basis from which the subsequent research presented in this thesis can be understood. I will provide an overview of the various concepts and interpretations associated with humanism, and claim a deep-seated and profound relationship between these ideas and the project of education. I draw on literature suggesting that a fundamental dualist thinking established in the subject | object divide, detaches the human subject from the surrounding world. I thus argue that education serves as the motor of an anthropological machine (Agamben 2004) which persistently functions to draw a distinction between human and non-human, significantly limiting how education can be understood. I suggest that critical posthumanism, as a broad reconsideration of humanism, offers ways of thinking beyond the dominance of the humanist subject in education. I also describe new

materialist theory as a way of acknowledging the non-human and material contingencies that shape our world. I outline the concepts of *immanence*, *intra-action* and *difference* as ways of understanding a *monist* orientation to posthumanism. I will argue that education and educational research have been dominated by *dualist* orderings that assume a particular arrangement of the world, and suggest *openness* and *hybridity* as alternative ways of thinking about a relational and materialist posthumanism. After clarifying my understanding of the ‘human subject’ and the ‘human being’ in this chapter, I will suggest the concept of ‘the fold’ (Deleuze 1991) as a way of thinking beyond the subject in posthumanism.

Chapter 3 specifies the research methods and guiding methodology. I begin with outlining the selection of MOOCs for my participant observation, and acknowledging some of the intentions and problems behind these decisions. I attempt to describe my own position with regard to established notions of ethnography and participant observation, defining areas of influence in digital, sensory and connective ethnography, but also suggesting problems in an over-emphasis on the social. As such, I propose a strategy which sought to capture non-human data, as well as decentre myself from the processes of capture and analysis. I go on to describe the three principal methods used in this thesis: field notes, involving word processed and paper-based notes, some of which were augmented with technologies that attempted to challenge an online | offline distinction; discourse analysis, which drew from wider discussions and commentary on MOOCs, and sought to develop more substantive themes and formal writing; and a small number of experimental methods which utilised web-enabled sensors in the attempt to capture and display ‘non-human data’. I propose an overarching research design of ‘diffractive reading’ through which these methods might intra-act, and which attempted to disrupt a rational analysis of outcomes. Finally, in the methodology section, I will describe seven research aporias: non-representationalism, subjectivity and objectivity; research as writing; interpretation; validity; ethics; and power. These will be suggested as problematic areas within my research, and their navigation will serve to outline how this research can be understood.

Chapter 4 is the first of the analysis chapters and takes a broad view of the MOOC project by analysing corporate promotion, associated research and platform design. I begin by suggesting problematic and uncritical notions of globalisation as driving the MOOC agenda, and proceed to outline the intersection of postcolonial theory and posthumanism as an alternative theoretical framework. The intention here is to expose the limitations of the humanist agenda that lies beneath MOOC promotion. The chapter is divided into three

sections, the first of which analyses promotional material from the leading MOOC platform providers, and suggests a colonising tendency which assumes a universal desire for the education provided by elite institutions. I propose the notion of ‘data colonialism’, in which Western tendencies towards dominance and accumulation are recast as practices of capturing the personal data of MOOC participants. Emerging research associated with the foremost MOOC organisations, alongside the design of their platforms, will be shown to bolster this impetus.

Chapter 5 retains a broad consideration of the MOOC project, and turns attention to notions of participation and community. I ground this exploration in theories of immunization (Lewis and Kahn 2010, Esposito 2008) and the anthropological machine (Agamben 2004) to offer an explanation of the ways in which a humanist orientation purifies itself from outside contaminations. I will argue that, through offering a form of open education, MOOC projects have habitually assumed universal and enthusiastic participation, yet have largely encountered silence, inactivity and the practice of ‘lurking’. This chapter will analyse how various MOOC initiatives have responded to this dilemma, through measurement procedures and theories of learning. I will show how these approaches tend to normalise modes of participation into predefined categories that reflect the colonialist orientation of the MOOC, and propose methods of engagement that establish a self-directing individual at the core of educational activity. In these ways, I will argue that the broad MOOC project is constrained by adherence to a humanist subject that rejects difference, and thus fails to attend to the potential diversity, or inclusion, of global populations.

In chapter 6 I begin to focus analysis on specific MOOCs, beginning with an examination of ‘Modern and Contemporary American Poetry’ (known as ModPo) from the University of Pennsylvania on the Coursera platform. I use this chapter to consider how the dominant framework of the humanist subject structures the way ‘space’ and ‘place’ can be understood in the MOOC. I argue that ModPo retains a hierarchical and concentric arrangement that reflects the broader ‘inside’ | ‘outside’ divisions of the MOOC. I show how a particular campus building is established as the authentic site of the course, distancing and virtualising online participation as a peripheral encounter, and maintaining the elitism supposedly overcome by the MOOC. Participation will be shown to largely endorse this arrangement, attesting to the potency of ‘place’, and a desire for idyllic campus attendance that is generally not met by MOOC promotion. The chapter will also suggest that the video broadcast tends to establish a particular spatial arrangement for the pedagogy of the MOOC,

one that has the potential to dominate and marginalise local ways of teaching. Thus, I suggest the spatial orderings of ModPo are constrained into privileging the legitimacy of the sedentary through a foundational adherence to the humanist subject. As such, efforts to promote admittance and openness tend to reflect the colonialist drive of the MOOC, and maintain the elitism and inaccessibility of the university campus.

Chapter 7 continues the emphasis on particular courses with an analysis of the ‘E-learning and Digital Cultures’ MOOC (EDCMOOC) from the University of Edinburgh offered on the Coursera platform. This is a MOOC in which I was involved as a teacher, and so I make claims with caution in this chapter, and offer recognition of my own connection and collusion with the course. The analysis undertaken is therefore from the perspective of a teacher as well as a researcher. I will ground the analysis in a theory of the ‘monstrous’ (Lewis and Kahn 2010), which uses the figure of the monster to propose a productive value to that excluded from the human community and the humanist subject. I will claim that the EDCMOOC manifested a particular kind of ‘massiveness’, through large volumes of course content and self-directed activities, that was perceived by significant numbers of participants as being overwhelming and threatening. The analysis begins with an examination of EDCMOOC spaces, in which I propose notions of hybridity and contamination as ways of understanding the shifting and algorithmically-infused social media services utilised by the course. I will also show how the community and the individual were perceived to be vulnerable when faced with such EDCMOOC activity. However, within these very responses I will argue that alternative visions can be discerned, ideas which move beyond the safety of the human community and the rational doctrines of the human subject, towards more radical notions of hybrid, sociomaterial engagements with the MOOC.

In the final conclusion, I will review how the various chapters have worked together as a cohesive critique of the MOOC, and emphasise the overall contribution of this thesis. I will also offer suggestions for continued MOOC practice and pedagogy, and specify areas where work in this thesis could be productively developed into future research.

Background to the MOOC

In this thesis I use the term MOOC to refer to fully online courses that are designed for large numbers of participants, usually offering free access to activities and content. However, absolute characterisations are problematic, and as Baggaley suggests ‘there is no such single entity as a MOOC, and multiple definitions of it are proliferating’ (2013, p368). The

following section will outline the development of what has become known as the MOOC, and highlight the key organisations and individuals involved in its inception.

The acronym was coined in response to a course called ‘Connectivism and Connective Knowledge’, offered in 2008 by George Siemens and Stephen Downes (McAuley *et al.* 2010). The course became known as CCK08, and is often considered to be the first MOOC (Mackness *et al.* 2010, Milligan *et al.* 2013, Stewart 2013). Subsequently, Siemens and Downes are frequently credited with pioneering the MOOC format (DeSantis 2012b, Young 2012, Parr 2013c, Kolowich 2014), although they have acknowledged the influence of David Wiley and Alec Couros in the design and approach of these courses (Baggaley 2013). In this early stage, MOOCs were considered to be a vehicle for the proposed learning theory of ‘connectivism’ (Siemens 2005, Downes 2007), a concept of networked learning that will be examined further in chapter 5. Notable examples of connectivist-informed MOOCs are: Personal Learning Environments and Networks and Knowledge (PLENK10), Online learning for today and tomorrow (EduMOOC 2011), Change: Education, Learning and Technology (Change11), Learning Analytics and Knowledge (LAK12), MobiMOOC and Digital Storytelling (DS106). These courses emphasised self-directed learning and the use of social media, often overtly diminishing the role of the teacher and avoiding formal assessment or accreditation.

While advocates of the connectivist-informed MOOCs frequently claimed a position of being outside established institutional practices (Fini 2009, McAuley *et al.* 2010, Cormier 2010a, Stewart 2013), 2011 saw the first ‘mainstream’ interest in MOOCs with Stanford University’s ‘Introduction to Artificial Intelligence’ course, known as CS221 (Rodriguez 2012). Taught by Sebastian Thrun and Peter Norvig, the course attracted 160,000 enrollees, which far exceeded the numbers involved in earlier MOOCs, and utilised a central website to display video lectures and provide automated assessment exercises (Rodriguez 2012). The high-profile CS221 course lead directly to the forming of for-profit MOOC organisation ‘Udacity’ (DeSantis 2012a), and the other two principal US platform providers ‘Coursera’ and ‘edX’ were soon to follow. This thesis will focus on these three central organisations, with some additional consideration of the UK-based ‘FutureLearn’.

Coursera was launched in April 2012 (Baggaley 2013) by Stanford University computer science professors Daphne Koller and Andrew Ng. This for-profit organisation has received around 85 million in venture capital funding from corporate backers and partner institutions

(Kolowich 2013b, Coursera 2013). At the time of writing, Coursera are partnered with 110 institutions and offer 686 courses (Coursera 2014g), and in this sense are the largest of the three leading platforms. Coursera have publicised the generation of 1 million US dollars in revenue from their ‘Signature Track’ service, which offers verified certificates for a prescribed fee (Coursera 2013b). In May 2012, Harvard University and the Massachusetts Institute of Technology formed the non-profit MOOC consortium edX (Baggaley 2013), amalgamating the previous ‘HarvardX’ and ‘MITx’ projects. Funded by the two institutions, edX has attempted to distance itself from the for-profit contexts of other MOOC initiatives (edX 2013a), and has made its platform open source (edX 2014c). At the time of writing, the platform has affiliations with 50 educational institutions and organisations, and has offered over 200 courses. Udacity was launched in February 2012 by Sebastian Thurn, a Stanford University professor of computer science and employee of web company Google (Baggaley 2013, DeSantis 2012a). Rather than promote partnerships with elite institutions, Udacity offered courses through their own branding, however the institutional affiliation of instructors is highlighted within course descriptions. In late 2013, Udacity changed its direction to provide more vocationally-focussed courses, with Thurn admitting that MOOCs were not delivering the kind of educational experiences he initially thought they would (Chafkin 2013).

FutureLearn, a consortium based in the United Kingdom which is co-ordinated and owned by the Open University, was unveiled in December 2012 (FutureLearn 2013a). FutureLearn is a for-profit organisation, reported to have sought out high ranking UK institutions in order to rival the US-based providers (Parr 2012, Gibney 2013a, 2013b). At the time of writing, FutureLearn is partnered with 26 UK institutions and 10 non-UK (also non-US) institutions, and has offered 70 courses within a broad range of disciplines. Other notable early UK MOOCs include ‘First Steps into Learning and Teaching in Higher Education’ offered by Oxford Brookes University in May 2012 (FSLT 2011), and ‘Learning Design for a 21st Century Curriculum’ offered by the Open Learning Design Studio, known as ‘OLDSMOOC’¹ (OLDSMOOC 2013).

Other significant MOOC providers include ‘OpenupEd’, ‘Udemy’ and ‘P2PU’. OpenupEd launched in April 2013 with funding from the European Union (EU) and direction from the European Association of Distance Teaching Universities (EADTU). It is a non-profit

¹ See Bayne and Ross (2014) for an extensive timeline and list of UK MOOCs.

venture that supposedly ‘reflects European values such as equity, quality and diversity’ (OpenupEd, no date), thus attempting to create a clear distinction from the US-based MOOC organisations. Rather than seeking partnerships with elite institutions, OpenupEd has established itself around the open universities model, forming partnerships with a number of the continents distance education institutions. Udemy is sometimes included within discussions of the MOOC (Lewin 2012); however the project was launched in 2010, before the large platform organisations, and is self-styled as a ‘marketplace’ for online learning, without formal institutional affiliations, and allowing any number of individuals to create and offer courses (Udemy, no date). P2P University, a non-profit online educational organisation launched in 2009 and established around notions of open content, community and peer learning, has also offered a number of MOOCs (P2PU, no date).

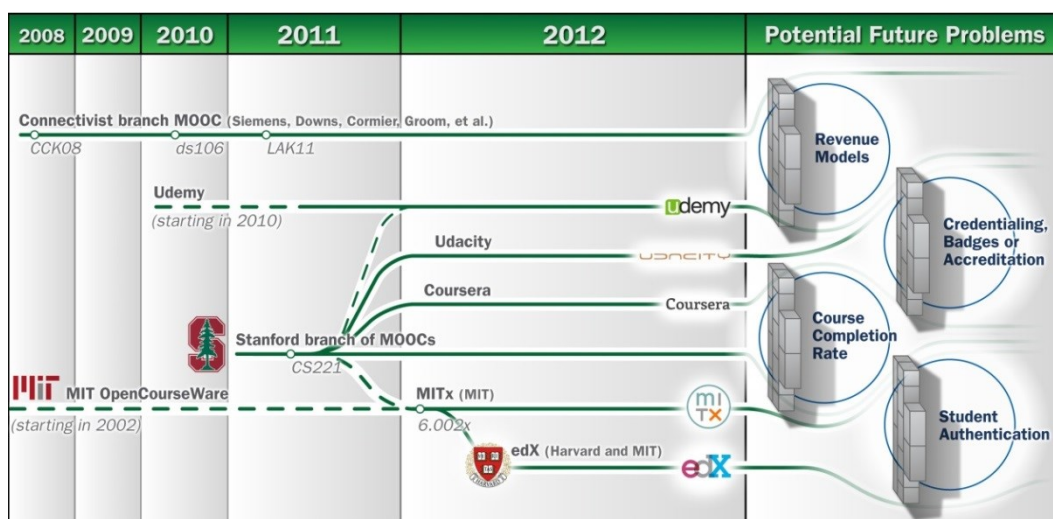


Figure 1: Timeline of MOOC developments, emphasising the distinction of the ‘connectivist branch’ (Hill 2012).

Hill (2012) offers a visual timeline of MOOC developments, depicting the emergence of Coursera, edX and Udacity from previous online projects, including MIT OpenCourseWare (see fig 1). Significantly, this visualisation emphasises the distinction of a ‘connectivist branch’, and situates Udacity and Coursera with a ‘Stanford branch’ (see fig 1). Hill states that ‘[t]he two current branches of MOOCs are different and will not merge’ (2012), a theme reflected in the literature, discussed below. A later visualisation from Yuan and Powell (2013) offers a different interpretation of MOOC origins (see fig 2). Here the ‘connectivist’ MOOCs are shown to emerge from a broader Open Educational Resources (OER) movement, and the subsequent ‘Stanford MOOCs’ appear to descend from the ‘cMOOC’ line (see fig 2). Also notable is the distinction of FutureLearn; presented as directly related to the Open University, and avoiding the connectivist influence entirely.

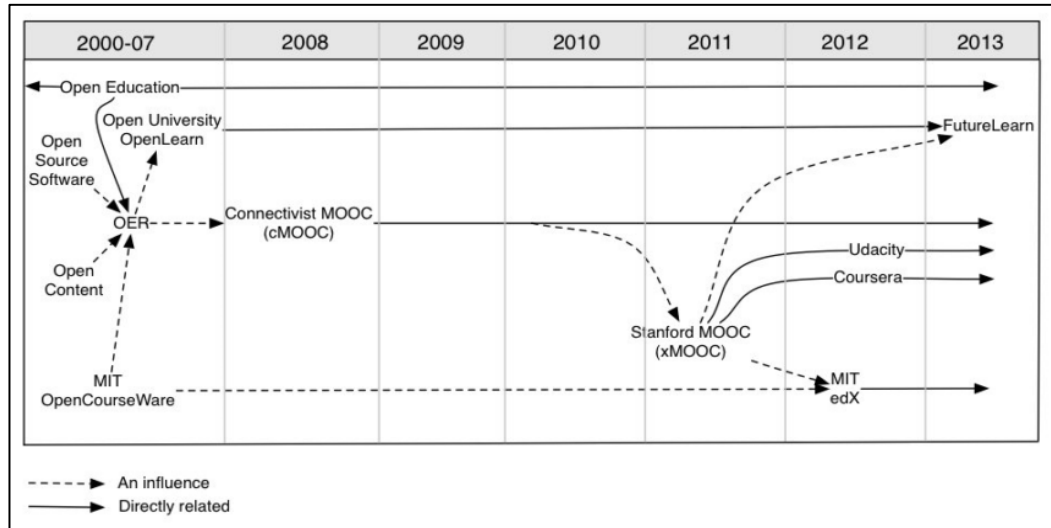


Figure 2: Timeline of MOOC developments, emphasising the distinction of the 'connectivist branch' (Yuan and Powell 2013).

These junctures in the development of the MOOC suggest, not only the broad field of online and distance learning from which these courses derive, but also the different directions in which these initiatives are developing. While I suggest that MOOCs are differentiated in much more complex ways, these visualisations also conform to a dominant perception of two distinct MOOC categories: the 'cMOOC' and the 'xMOOC'² (Downes 2012). Siemens outlines this distinction, where the former term denotes the connectivist inspired offerings, and the latter the 'well-financed' platform-based courses by Coursera, edX and Udacity (2012). As shall be discussed in the subsequent review of literature, this idea of a bifurcation in the MOOC has gained significant traction, however it has largely been propagated by advocates of connectivism who have been critical of the later developments (see Siemens 2012, Parr 2013c). Nevertheless, there are some important facets to these MOOC classifications, which will be outlined in the next section.

MOOC structures

While those MOOCs claiming to be underpinned by 'connectivism' do not necessarily conform to a consistent structure, they have tended to foreground the use of distributed social networks and online spaces, and promote notions of self-direction and collaborative learning (Cormier 2010a, McAuley *et al.* 2010, Waite *et al.* 2013, Stewart 2013). As testing grounds for the theory of connectivism, early MOOCs were designed to explore how learning might

² Downes contends that the 'x' was meant to denote the idea of extension, such that 'xMOOCs' are an extension of existing university provision (2013).

take place in networked environments (Bayne and Ross 2014), where individuals are required to negotiate resources and community activities independently. As such, rather than predefining course structures, the connectivist-informed offerings have emphasised modes of participation, for example the activities of ‘aggregation, relation, creation, and sharing’ (Kop 2011, p35), or the principles of ‘aggregate, remix, repurpose and feed forward’ defined in the ‘Change11’ MOOC (Downes *et al.* 2011). The forming of a Personal Learning Network (PLN) is often proposed as the primary mode of engagement in such MOOCs (Cormier 2010b, Kop *et al.* 2011, Osvaldo Rodriguez 2012), and will be discussed in detail in chapter 5.

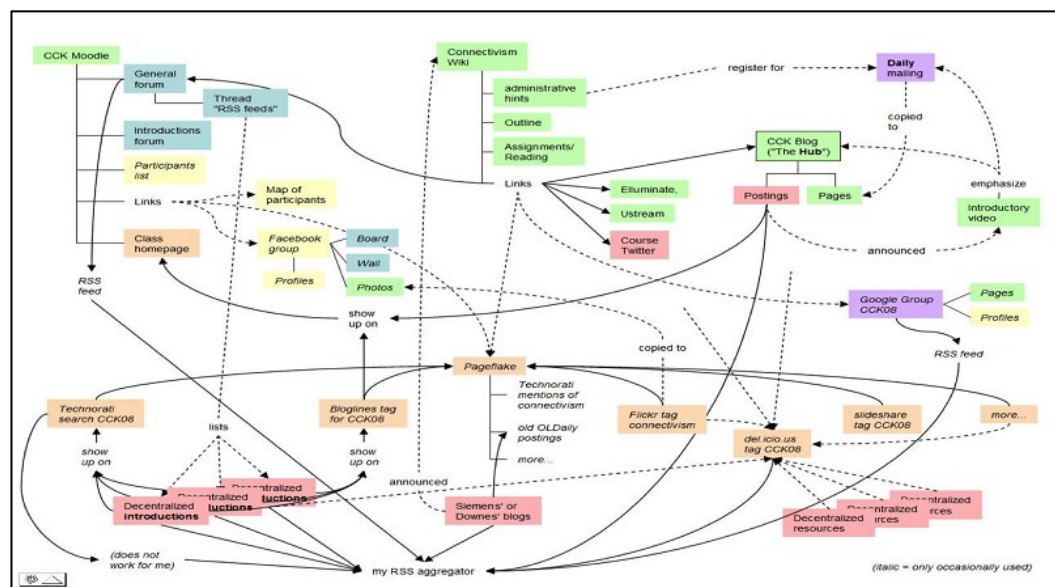


Figure 3: Diagram depicting the distributed structure of the CCK08 MOOC (Downes 2011).

Nevertheless, many of these courses did conform to certain arrangements, such as central web spaces for hosting course information, Facebook groups and Twitter hashtags, and the aggregating of distributed student-created content into a single web page or feed. Downes provided a diagram of the CCK08 MOOC which illustrates the various services and forms of content that shape the networked space of the course, emphasising distribution and connection as foundational arrangements (see fig 3). Significantly, the connectivist-informed MOOCs promote the idea of openly accessible content, signalling their association with the broader open education movement. Thus the content of these MOOCs is typically in the public domain, either as core course material or student-generated responses. Indeed, often guided by the connectivist concern for networks, these courses frequently eschew formal teacher-driven approaches, as well as accreditation or certification, and encourage

independent study, group collaboration and peer support (McAuley *et al.* 2010, Rodriguez 2013).

Following Stanford's Introduction to Artificial Intelligence course, Coursera, edX and Udacity established a more centralised structure with the development of the MOOC platform. The web services offered by these organisations largely conform to the same arrangement, combining three elements within a single space: course content in the form of video lectures, discussion fora, and some form of automatically facilitated assessment, either as a multiple choice questionnaire or a system for managing peer feedback and grading. Rather than the connectivist concepts that underpin the more distributed models, the platform-based MOOCs are defined as being steered by a behaviourist pedagogy that privileges the repetition of content and the importance of testing (Rodriguez 2012). Thus the MOOC platforms are designed to provide large scale admittance to centralised, teacher-created, and institutionally endorsed content, rather than engaging with the participatory practices of the connectivist-informed courses (Rodriguez 2013, Bayne and Ross 2014). The importance of the notion of scale in relation to these MOOCs (also see Stewart 2013) will be discussed in chapter 4.

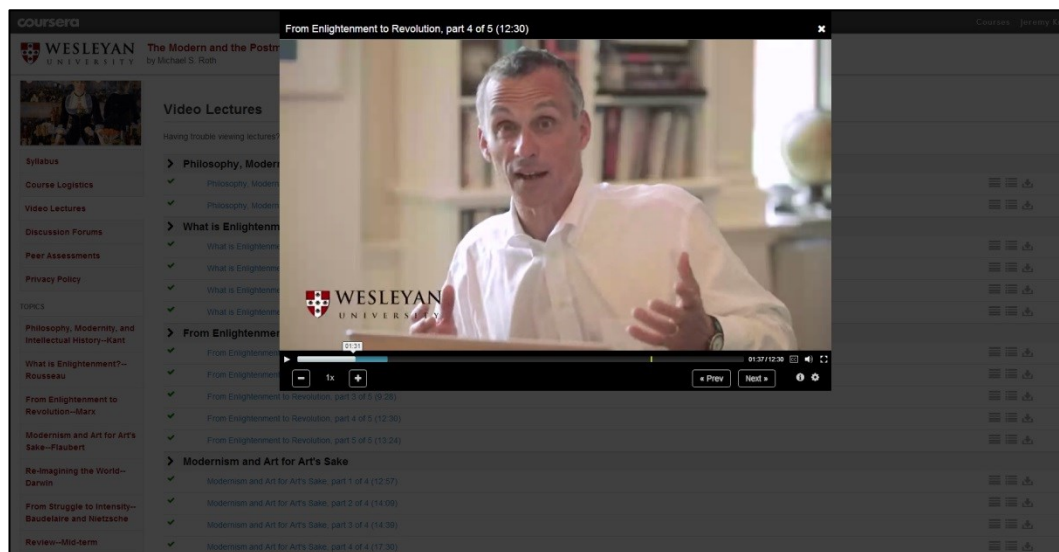


Figure 4: Still from a typical video lecture arrangement, featuring the head and shoulders view of the instructor delivering the lecture 'From Enlightenment to Revolution part 4 of 5' to camera.

The typical platform-based MOOC is comprised of a series of video lectures, which form the primary content of the course. These videos are embedded within the platform, and in most cases feature the course instructor delivering a lecture to camera (see fig 4). Noteworthy is the institutional branding which is habitually added to this content (see fig 4), indicating the

centralised ownership of material that contrasts with the principles of open access prevalent in many of the earlier MOOCs. These lectures are frequently interspersed with multiple choice quizzes, which test the viewer on the content of the lecture, and require answering before the remaining portions of the video can be viewed. (see fig 5). This typical structure further demonstrates the behaviourist tendencies which appear to underpin the design of the MOOC platforms.

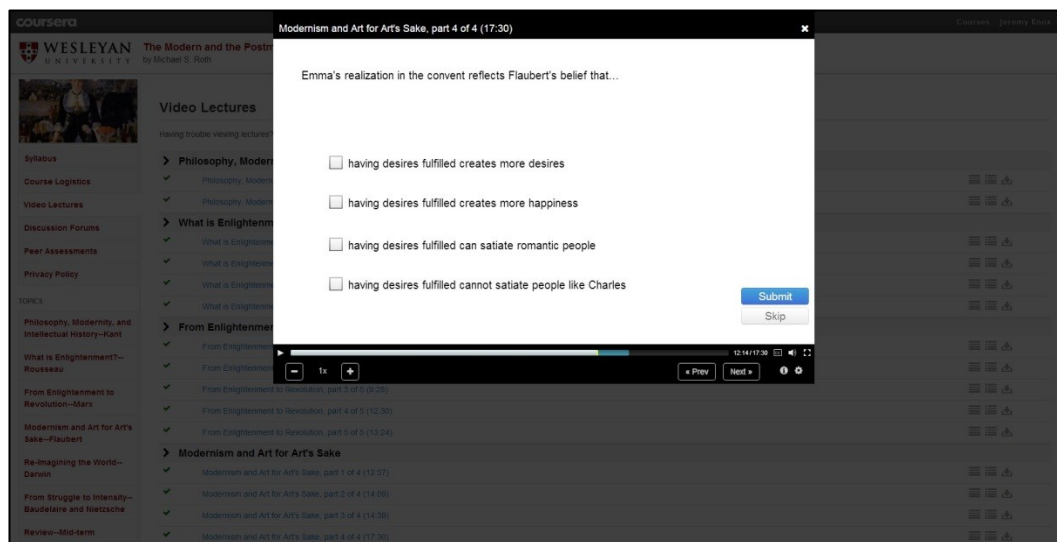


Figure 5: Still from a typical video lecture, displaying an embedded multiple choice quiz within the 'Modernism and Art for Arts Sake part 4 of 4' lecture.

Correspondingly, a significant difference in the later platform-based offerings is the emphasis on formal assessment and recognition, aligned much more closely with established educational routines than the connectivist-informed MOOCs. Accreditation of these courses has thus been a prominent topic in media reporting and blog writing about MOOCs (for example Kolowich 2013c, Bates 2013, Poyiadgi 2014). However, at the time of writing Coursera and edX do not grant credit themselves for any of their MOOCs, and only a small minority of educational institutions in the US (see Fitzgerald 2013, Bishop 2013) and the UK (see Parr 2013d) have offered credit for those students successfully completing them. Udacity have perhaps made the most significant development in this area, partnering with the Georgia Institute of Technology and multinational telecommunications corporation AT&T to offer a Masters level degree (Onink 2013).

In the absence of formal accreditation from established institutions, the majority of platform-based MOOCs offer bespoke certificates, termed 'statements of accomplishment' by Coursera and 'certificates of achievement' by edX. All three organisations also offer

verified certificates, through which students must undergo a process of identity authentication. This service encompasses a charge, and has been identified as a key source of revenue for the platform-based MOOC organisations (Lewin 2013, Fain 2013, Clark 2014). Coursera and edX have also initiated combined groups of related courses that contribute towards a superior certificate within a particular discipline, the former using the term ‘specializations’ (Coursera 2014h), and the latter ‘xseries’ (edX 2014d). Udacity have also recently announced a micro-credit arrangement termed ‘nanodegrees’, focussed on the accumulation of vocational skills relevant to the technology industry (Udacity 2014e). This clear concern for assessment and recognition is manifest in the centralised platform structure; an arrangement which will be discussed further in chapter 4.

It is important to note that the structures outlined here are generalised arrangements, and individual MOOCs are emerging with more nuanced compositions and pedagogies (Bali 2014), incorporating both centralised and distributed elements, as well as behaviourist and community-focussed designs (Bayne and Ross 2014). The examination of specific MOOCs in chapters 6 and 7 will also demonstrate the distinct ways in which these courses emerge.

Key literature

Research of the MOOCs associated with connectivism has only appeared in niche journals and conferences, accompanied by a large body of online publications independent of the peer-review system (Milligan *et al.* 2013). Early research emerging from the CCK08 MOOC included the surveying of student attitudes towards technology use (Fini 2009), as well as the analysis of participant perspectives on the practises of networked learning (Mackness *et al.* 2010). Later work has given attention to modes of participation (Ahn *et al.* 2013, Milligan *et al.* 2013, Waite *et al.* 2013) – a theme which will be examined further in chapter 5, student experiences (Saadatmand and Kumpulainen 2014), and participant co-creation of content (Andersen and Ponti 2014).

Research of platform-based MOOCs has maintained an interest in student experiences and approaches to participation. While critical of many of the claims made by MOOC advocacy, Adams *et al.* offer a phenomenological study of learning experiences, focussing on the watching of video lectures in ‘xMOOCs’ (2014). Li *et al.* also analyse student engagement with video content, concluding that co-located groups impact positively on the learning experience (2014). Additionally, a significant body of research associated with the ‘xMOOC’ platform organisations is directing attention at profiling students and measuring

modes of participation (Christensen *et al.* 2013, Ho *et al.* 2014, Breslow *et al.* 2013, Perna *et al.* 2013), and will be analysed in detail in chapter 5. Research is also emerging that considers cases of ‘blended learning’, in which MOOCs are used in conjunction with established campus provision (Bruff *et al.* 2013), a model promoted by Coursera (Coursera 2014c) and edX (edX 2014c).

Following the rapid swell of interest in the platform MOOCs, bolstered by enthusiastic responses in the media (for example Adams 2012, Pappano 2012, Lewin 2012, Marginson 2012, Friedman 2013), a number of review papers and high-profile reports were published. Sir John Daniel’s influential ‘Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility’ (2012) attempts to moderate the hyperbole of media reporting with a consideration of much broader and more established research in distance and online education. However, while reviewing the breadth of MOOC initiatives at the time, the paper concludes with a largely positive outlook on the transformative possibilities of the format (2012). Marshall has also reviewed the strategic challenges faced by educational institutions engaging with MOOC provision (2013).

A report from JISC CETIS in the UK focuses on implications for higher education through analysing the disruptive potential of the MOOC model, issues of funding, and the potentials of increasingly open practices in the sector (Yuan and Powell 2013). A report from Universities UK also reviews current developments in the MOOC domain, centring on issues of academic credit, prospective business models, and institutional strategies for increasing the diversity and global reach of provision (Universities UK 2014). The Department for Business Innovations and Skills in the UK also produced a broad review of MOOC-related literature and research, concluding that initiatives are ‘maturing’, largely due to the claim that sustainable business models are emerging which will standardise these offerings within established HE structures (Haggard 2013). Another recent report produced by The Institute for Public Policy and Research, a UK-based thinktank, calls for necessary changes to the sector as a result of initiatives such as the MOOC (Barber *et al.* 2013). Titled ‘An Avalanche is Coming’, the report claims that current higher education structures are redundant, and that radical changes are required on the part of students, universities and governments to harness the emancipatory potentials of the MOOC (Barber *et al.* 2013). The largely uncritical stance towards globalisation in this report will be examined further in chapter 4. A further report from the Higher Education Academy (HEA) in the UK has focussed on pedagogical issues (Bayne and Ross 2014), rather than what seem to be the

more dominant business- and economic-related concerns. Bayne and Ross stress the diversity of MOOC designs, and explore the implications for teaching and scholarship in this recent, but high-profile field (2014).

In the US, the American Council on Education (2013) also produced a report on the motivations of US administrators and faculty in undertaking MOOCs with Coursera, Udacity and edX, and other bespoke systems. It highlights both strategic and pedagogic rationales, including the wide dissemination of knowledge and the enhancement of campus experiences (American Council on Education 2013). The recent Babson Survey Research Group report on online learning in the US also included a dedicated section on MOOCs (Allen and Seaman 2014). Findings from this report include: claims that media attention outstrips the actual impact of MOOCs on education institutions; the suggestion that larger institutions are more likely to get involved in MOOC offerings; and that the most cited reasons for undertaking MOOCs were to ‘increase the visibility of the institution’ and to ‘drive student recruitment’ (Allen and Seaman 2014, p25). While other responses did attest to an interest in pedagogical innovation, the report has been interpreted as signalling a decreasing interest in online provision amongst US institutions (Straumsheim 2014).

A substantial tendency in MOOC literature has been to emphasise a distinction between the connectivist MOOCs and the later platform-based offerings (Rodriguez 2012, 2013, Daniel 2012, Marshall 2013, Andersen and Ponti 2014). However the validity of this categorisation has also been challenged. Bayne and Ross suggest such the ‘xMOOC’ | ‘cMOOC’ binary to be too simplistic; a ‘too-easy shorthand for describing MOOC provenance and pedagogy’ (2014, p21). Bates also attests to the redundancy of the classification as MOOCs develop and differentiate (2014). In suggesting future approaches for the MOOC, Waite *et al.* propose a fusion of the two forms (2013). Similarly, drawing from MOOC survey data, Beaven *et al.* recommend a balance between self-direction and central facilitation (2014). Stewart also critiques the ‘cMOOC’ | ‘xMOOC’ distinction, considering the potential of the broad MOOC phenomenon to expose increasing numbers of learners to digital literacy practices (2013). Alternative ways of classifying MOOCs are thus beginning to emerge, such as the twelve dimensions proposed by Conole, which include ‘the degree of openness’ and ‘the extent to which collaboration is included’ (2013).

Critical and theoretically-driven perspectives have been scarce in the peer-reviewed literature. In a recent study of the PLENK10 MOOC, Fournier *et al.* offer an examination of

the methodological challenges encountered in the research of connectivist MOOCs (2014), however underlying theoretical assumptions about the value of self-direction seem to remain unchallenged. Despite the connectivist interest in networks, surprisingly few peer-reviewed articles have engaged with other prominent concepts of the network, such as Actor Network Theory (ANT), beyond a rudimentary comparison with the CCK08 MOOC (Bell 2010). Nevertheless, emerging research of MOOCs is beginning to draw upon the analytical potentials of ANT, such as Perrotta's (2014) discussion of the assemblages formed through the intermingling of digital technologies and MOOC teaching, and Ponti's examination of non-human agency in the form of course features that perform teaching functions (2014). In chapter 5 I will explore the relations between ANT and connectivism further, and demonstrate that the fundamental incongruity between these concepts is the lack of theorisation of the subject prevalent in connectivist work. Other critical approaches include Clarà and Barberà's analysis of the connectivist-informed MOOCs, suggesting insights from cultural psychology as more useful pedagogical framework (2013). The corporate model has also been questioned, in Baggaley's comparison with the fast food industry (2014), and Portmess's critical analysis of MOOC promotion that claims a democratising of education and egalitarian access to knowledge (2013). These themes will be examined further in chapter 4. Further critical perspectives can be found in Marshall's examination of the ethical issues involved in undertaking MOOCs, both from an institutional and academic perspective, proposing a set of heuristics for course development (2014).

While some critical perspectives are beginning to emerge, MOOC-related research has largely comprised of considerations of connectivism, examinations of participant experiences, and reports or reviews of current trajectories and future business models. Theoretical work which examines underlying assumptions about the humanist subject is under-represented, and the emerging field of MOOC research tends to adopt uncritical views of the human beings both constituting and being constituted as learners. Therefore, this thesis aims to contribute a critical perspective on the dominance and limitations of the humanist subject, as well as to suggest a value in looking beyond such notions as the guiding principles for the practice and pedagogy of the MOOC. In the next chapter I will clarify the notion of the subject through an examination of humanism and critical posthumanism, in order to establish the theoretical grounding for the research.

Chapter 2: Humanism and Posthumanism

Introduction

It requires a conscious effort, every time someone appeals to “human nature” or “the human condition”, to recall how recent such notions are, and how specific to a particular history and point of view. (Davies 1997, p25)

This chapter will draw upon theories of posthumanism and new materialism to establish a theoretical foundation for the subsequent exploration and analysis of the Massive Open Online Course (MOOC) in this thesis. The chapter will function as a literature review for the theoretical concepts that have shaped my research. I suggest that the concepts described here offer radical but affirmative possibilities for (re)engaging with the fundamental philosophical ideas upon which education is premised, as well as creative and revitalising opportunities for thinking differently about the people, objects, technologies, spaces and knowledge of education.

The chapter will begin by defining humanism, drawing upon the various historical periods and cultural movements that this term has become associated with. While humanism will be shown to be a multiple and irregular concept, I will identify four principles that appear to endure in the ways that human beings are framed: essentialism, universalism, autonomy, and the transcendental subject. The subsequent section will suggest an entrenched association between these principles and the modern project of education (Biesta 1998, Pedersen 2010, Usher and Edwards 1994), such that they are involved in mutual constitution and maintenance, and remain locked in enduring cycles of repetition. It is the humanist assumptions of rational thought, autonomy, privilege and progress that drive an educational machine based on cognitive, behaviourist or constructionist pedagogy, and the individualism and anthropocentrism that derive from a deep-seated belief in the truth, purity and universalism of human identity. Thus the human subject is circumscribed, sterilised and maintained through education; an empowered subject separated and sanitised from the external world of colonisable spaces, inert objects and lifeless technologies. The discourses, promises and practices of MOOCs conform to such orthodox ideas in education, often maintaining humanist views of the rational, autonomous and bounded learning subject, determinist beliefs in the instrumental function of technology, and uncritical notions regarding the stability, passivity and immateriality of space.

The second section of the chapter will propose critical posthumanism as a theoretical framework with which to challenge, but not necessarily oppose, the conventions of humanism. I will outline the broader theoretical domain by proposing four key stands: critical posthumanism, anti-anthropocentric posthumanism, transhumanism and analytic posthumanism. Critical posthumanism will be adopted as the key strand, and shown to have important associations with the anti-humanist thought of 20th century French philosophy. However, the distinction between anti-humanism and posthumanism is crucial, and I will highlight the influence of poststructuralism in the development of a non-oppositional relationship to humanism (Braidotti 2013). To directly counter humanism is to remain within a negative and hierarchical dualism that maintains each extremity (van der Tuin and Dolphijn 2010). The posthumanism I develop in this chapter will not only deny a self-present, essential human subjectivity to oppose, the final section will also engage with the full, radical implications of a non-dualist philosophy. I will also draw on work in cybernetics and cultural studies, two seemingly diverse fields which have contributed significantly to questioning the privilege, exceptionality and purity of the human condition. It is through the systemisation and modelling of living organisms, as well as the dystopic visions of science fiction literature and film, that the posthuman emerges as a hybrid being, imbued with the possibility of new configurations of existence that gather together the reasoning of empiricism and the practice of theory. Thus posthumanism does not rest at merely holding humanism to account, but also offers a framework for enacting new and different ways of encountering and engaging *in* the world (Braidotti 2011, 2013).

This convergence of the supposedly discrete domains of empirical, real-world science and abstracted, constructivist theory is reflected in work associated with new materialism, which will be discussed in the succeeding section. New materialism is a theoretical position which seeks to re-engage with the material, or non-human, where discourse and epistemology are perceived to be over-emphasised (Dolphijn and van der Tuin 2010). Work in new materialism locates this privileging of human thought in the Cartesian cogito, the dominance of constructivist theory, and the so-called ‘cultural turn’ (Barad 2003, Coole and Frost 2010). Importantly however, I will outline new materialism as a non-dualist approach that draws on the monist philosophy of Deleuze in order to traverse human | non-human, and subject | object binaries (van der Tuin and Dolphijn 2010). Deleuze’s monism is a philosophy that foregrounds relational material processes over essence, and offers an alternative to notions of hierarchical and oppositional ordering (1987). In this section I will outline the concepts of

immanence, *intra-action* (van der Tuin and Dolphijn 2010), and *difference* (Dolphijn and van der Tuin 2011) to articulate the material processes that constitute this monist world. These overlapping ideas describe the ways in which active and self-organising matter engages in persistent co-constitutive relations that defy essence or identity, yet which account for specificity and context. As conceptual tools, they are suggested to provide productive ways of avoiding the dualistic thinking of humanism, and formulating new ideas about the material processes within which humans are merely a part (van der Tuin and Dolphijn 2010, Dolphijn and van der Tuin 2011).

In this section I will also suggest that the dualistic orderings of humanism have been maintained in both (post)positivism and constructivism. Both the notion of an external, discoverable world and the idea of a socially produced reality, preserve the distinction and privilege of the human being. Rather than remain locked within such an opposition, I contend that the insights of new materialism provide a way to theorise the commonalities of these positions. I stress that this is not itself an oppositional move; the monist ideas I draw upon are not situated in a negative hierarchical relationship to dualist constructs. More accurately, I suggest that these concepts intra-act and (re)produce each other.

In the penultimate section of the chapter I draw on new materialist theory to define my own position with regards to the various approaches to posthumanism. For this purpose I suggest notions of *hybridity* and *openness* as ways of understanding the particularities of this position, founded on a commitment to concept-independent material processes (DeLanda 2002, 2006) which are self-organising and open to dynamic relations (Coole and Frost 2010). I begin by clarifying my interpretation of the ‘human subject’ in relation to the ‘human being’, specifying the former as a social and material construction, in contrast to the latter as a biological categorisation. However, I also work through the non-dualist approach of new materialism to highlight the ways that material factors and human categorisation are deeply entwined. In order to demonstrate the variance within critical posthumanism, I examine the work of prominent theorists to suggest a division that can tend towards the reassertion of a subject | object dualism. Firstly, I suggest the propensity to view the posthuman condition as a straightforwardly accessible and analysable state, sometimes associated with work in ANT. Secondly, I examine inclinations towards redefining the subject as a posthuman configuration, most prominently in the work of Braidotti (2006, 2011, 2013). In order to avoid such dualistic tendencies, I draw on the concept of ‘the fold’ (Deleuze 1991) as a way of creatively theorising a correspondence between an ‘inside’ and an ‘outside’ (O’Sullivan

2010). In this way, I suggest that a notion of hybridity can usefully articulate a theory of posthumanism without becoming a project of posthuman subjectivity. The idea of the fold will also be utilised to propose a notion of openness that is fundamental to the posthuman configuration, and will have implications for the way MOOCs are analysed in the subsequent chapters.

Of primary concern for education in this posthuman orientation are ways that knowledge can be conceived. The closing section of the chapter questions established notions of knowledge as cognitive or social phenomena, showing them to be orderings which rely on the dualist separation of subject and object, ontology and epistemology. Building on the concept of open, relational material processes, I explore the possibilities of non-representational knowledge in which human thought is considered immanent; part of the generative and self-organising matter of the world, rather than transcendent of it. Here I suggest that knowledge is always specific, embodied and relational; enacted in the encounter. The affirmative potential captured in the concept of ‘the fold’ (Deleuze 1991) comes to the fore in this formulation. Rather than delimiting or moderating the possibilities of perception, the fold retains an opening, through which different relations, and thus different enactments of knowledge, can be created.

This chapter draws upon a number of different theoretical areas and attempts to weave together various concepts. I acknowledge the potential drawbacks of this approach, in that each concept may not be given a full and in-depth treatment. However, I suggest that the advantages of this approach are in the creative possibilities of making links and relations between ideas; to produce new and different articulations of posthumanism that can be put to work in the study of MOOCs. I suggest that this approach is commensurate with the kind of philosophy I am drawing upon, in which the authentic identity of a concept is challenged as much as the authentic identity of the human subject. I suggest that the purpose of this chapter is to plug theories into one another (Coleman and Ringrose 2013) so that they ‘intra-act’ (Barad 2007), altering and hybridising each idea in the process. Furthermore, of vital importance to this thesis is the understanding that posthumanism is not an abstract, transcendent or stable idea that can be represented definitively in advance of its enactment *through, with and in* this research. Posthumanism must be *done* and must be *made*, and it is the purpose of this chapter to articulate the conceptual tools through which such configurations of human, space and education might be created.

Humanism

It is the myth of the *modern*; the *Renaissance* is its infancy; and its guiding ethos, its watchword, is *humanism*. (Davies 1997, p22)

Three tropes underpin the fabrication of humanism: the ‘break with the past’, perhaps encapsulated most vehemently in descriptions of the Renaissance, the ‘return to the source’, located habitually in the culture of the ancient Greeks, and an ‘unbroken continuity with the present’, in which the rational progress of humanism appears to define history itself (Davies 1997, p103).

In order to fully understand the thrust of posthumanism, the term to which it refers needs to be clarified. Humanism is itself a label that is often used to refer to a number of specific philosophical orientations, ethical perspectives, intellectual and cultural movements, including those of the European Renaissance, Romanticism and Modernity (Davies 1997). It is often associated with, but importantly not considered equivalent to, the intellectual activity of the Enlightenment (Foucault 1978, Davies 1997), and perhaps most accurately is described as an ideology defined retrospectively (Fuller 2010). This characterisation of humanism is generally attributed to the anti-humanist movement within 20th century French philosophy (Mautner 2005). Within this framework, the resurgence of classical philosophy in 14th century Europe reinstated ‘Man’ as the measure of the external world³, and defined a normative condition against which human beings could be measured, exemplified in the ‘bodily perfection’ of da Vinci’s the Vitruvian Man (Braidotti 2013, p13). It is not the point of this section to identify a historically authentic ‘humanism’, but rather, following Foucault (1978), to highlight particular value judgements and principles of differentiation that have circumscribed and delineated the category ‘human’ from all other living things.

This centring of the human as the supreme instrument for understanding the world (Agamben 2004) was developed in the Enlightenment, where the idea of rational thought propelled substantial social and political transformation in Europe (Foucault 1978). The seminal characterisation of this period is attributed to Kant⁴ (Davies 1997, Foucault 1978), who in the essay *Beantwortung der Frage: Was ist Aufklärung* appealed for a maturing of ‘Man’, such that knowledge could be attained without the guidance of a higher authority

³ Importantly, despite looking to the past of classical Greek culture, the renaissance was viewed, not as antiquarianism, but as an achievement of ‘heroic modernity’ (Davies 1997, p23)

⁴ As Davies suggests, it is the German capitalisation of the noun in Kant’s essay that may have influenced the move from ‘enlightenment’ to ‘the Enlightenment’ (1997, p119).

(1784). However, while the Enlightenment influenced a centring and privileging of the human mind, Foucault cautions against a simple conflation with humanism (1978), a point made explicit in the historical readings of the medieval, Renaissance, and 19th century humanisms by Davies⁵, alongside Kant's own complex relationship to religion (1997). For Foucault, the Enlightenment was a specific and localised event, and remains profoundly relevant as a 'critical interrogation on the present and on ourselves' (1978, p49). In contrast, the ideas of humanism are many, varied and historically contingent. Nevertheless, while the Enlightenment is often considered a 'theoretical demolition of religion, relocating its usurped authority within the human mind and will' (Davies 1997, p120), it was a particular idea of human being that was advanced in this period. For Braidotti, the Enlightenment instilled the exceptionality of the European male, premised on 'the progress of mankind through a self-regulatory and teleological ordained use of reason and of secular scientific rationality allegedly aimed at the perfectability of "Man"' (2013, p37). As Davies suggests of the Enlightenment, "'Man" is articulated, now, not by but against religion; not within but apart from "society"; not as a part, even a privileged part, of "nature", but outside it' (Davies 1997, p122-123).

Fuller provides an additional history of the concept of 'humanity', in which, highlighting the affectedness and inauthenticity of the idea, three 'Ages of Artifice' are identified (2010, p74). Here humanity is suggested to have been defined according to: the intellectual, moral and bodily ideals of Greek culture in the classical period; the medieval involvement in communal undertakings that exceed the individual; and the modern pursuit of engineering as a way to control and remodel the world (Fuller 2010). These projects sought to define abstract ideals, which, if practiced, bestow upon the individual an entitlement to humanity. This highlights both the historical fabrication of the category of the human as well as its practices of segregation which simultaneously mark the non-human and inhuman(e). This account is important for the ensuing discussion of posthumanism in its broadest sense; not just as a direct response to the specific traits of *humanism*, but as a reconsideration of the ways that the *human* is distinguished as a categorisation. In other words, posthumanism is not just about revisioning the principles and ethics of an already assumed human being, but also about questioning the human as a pre-existing category.

⁵ Indeed, the empirical tendencies of the Enlightenment are considered to be thoroughly *anti-humanist*, in comparison to the earlier humanism of an aristocratic and classical focus on Athenian philosophy and culture.

In accounting for humanism in historical terms, the intention is certainly not to suggest that this foundational philosophy has concluded, or that it is no longer a potent theoretical force. As Davies suggests, ‘the question of humanism remains ideologically and conceptually central to modern – even to ‘postmodern’ – concerns’ (1997, p5). Badmington puts this concisely: ‘Apocalyptic accounts of the end of "Man," it seems to me, ignore humanism's capacity for regeneration and, quite literally, recapitulation’ (2003, p11). For Braidotti, humanism resurfaces as: neo-humanism, seen as the only recourse for achieving the ideals of emancipation and equality; and an unintentional humanism, or crypto-humanism, in which attempts at deconstructive theorisations end up reasserting humanist values (2013). Of particular interest for Braidotti is the neo-humanism emerging from post-colonial and African studies, in which ‘respective political aims and passions’ are postulated to escape the injustices of the rational Euro-centric subject (2013, p219). The colonialist aspects of humanism will be discussed further in chapter 4, and shown to have significant implications for the project of the MOOC. Of additional relevance to this thesis is work which attempts to bring humanist morals to the design of technology (for example Verbeek 2011). This is an approach which, for Braidotti, presents a perverse reassertion of humanism in an already post-anthropocentric world that trades on life and genetic code (2013).

Whilst acknowledging the inconsistencies of the term, and its irreducibility to a definitive set of principles, this thesis will use ‘humanism’ to mean the following: the unproblematised assumption of the existence of a rational and autonomous ‘Man’ conceived in Europe and assumed to be universal in physical and cognitive form. What is crucial for this chapter are the commonplace ideas about human beings that are the legacy of this thinking: essentialism and universalism, that is, the notion that human beings possess certain innate qualities, and that this core humanity is assumed to exist for all human life; autonomy, where ‘Man’ is not only separated and privileged from the world around him, but also capable of independent thought and action, and the ability to exact control over his environment; and the transcendental subject, in which the rational thinking of the human mind is abstracted from reality, and considered to lead (inevitably) to masterful knowledge of an external and subordinated world.

Humanism and education

To take education seriously means also taking seriously the question of humanism. (Kakkori and Huttunen 2010, p2)

This thesis draws upon the postmodern critique of education (MacLure 2006, Scheurich 1997, Usher and Edwards 2004,) to situate established practices of teaching and learning within a tradition of 'faith in progress, rationality, access to truth, and the agency of the centred self' (MacLure 2006, p224). In other words, that the project of education is premised upon an a priori humanist subject and grounded in a 'deep truth of what it is to be human' (Biesta 1998, p15). As we shall see, the modern project of education is considered a potent, necessary, and pivotal force in the construction of the humanist subject, yet it is considered less in its capacity to *produce* the deep truth of the human than to *realise* it.

In positing a distinct human condition, the dualistic thinking of humanism creates a foundational inside and outside; a human and a non-human, a subject and an object. However, this ordering of the world requires production and maintenance, and it is education which becomes the engine of this humanist project (Biesta 1998, Pedersen 2010). Humanism's dependence on education⁶ derives from the way that the human subject is formulated, specifically in the problematic formulation of the 'empirico-transcendental doublet' (Foucault 1989, p347). This is the identification of a tension in the modern construction of the subject; between our observable bodies and the discoverable world around us, and the immeasurable representations of human consciousness and experience. Foucault articulates this as 'a *nature* of human knowledge that determines its forms', alongside a knowledge conditioned by the 'historical, social or economic' and 'woven between men' (1989, p347-8 emphasis original). Althusser further articulates this relation as the 'empiricism of the subject' coupled with the 'idealism of the essence' (2000, p31). Moreover, claims Althusser, this indissociable relation is often inverted to the empiricism of the essence and the idealism of the subject, yet the basic structure remains unchanged, and in which 'it is possible to recognise not only the principle of theories of society (from Hobbes to Rousseau), of political economy (from Petty to Ricardo), of ethics (from Descartes to Kant), but also the very principle of the (pre-Marxist) idealist and materialist "theory of knowledge" (from Locke to Feuerbach, via Kant)' (2000, p31). In other words, the problematic formulation of the human subject is deeply rooted in modern understandings of the human being.

⁶ Davies states that 'Humanismus was a term devised, probably by the educationalist Friedrich Immanuel Niethammer' (Davies 1997, p9), seeming to further indicate the entwined and co-constitutive histories of education and humanism.

Thus 'Man' as the empirico-transcendental doublet is sutured from the seemingly incommensurable domains of the observable and the observer; a fact that can be studied, yet also the source and condition of all facts (Biesta 1998). Biesta attributes this formulation to the philosophy of Kant, which, building on the Cartesian centring of the cogito, constructs 'a body being subject to the laws of nature and a mind or reason being literally autonomous' (1998, p4). It is this autonomy of the mind that is of central concern here. Education becomes indispensable for the project of humanism precisely because of the independence and sovereignty granted to the mind: educational practices are created to rationalise thought so that the individual's innate potential for humanity might be achieved. In other words, reason is the route to the truth of human experience and identity; a route that supposedly seals the rift between the empirical and transcendental. The foundational humanist subject is thus formulated in a way that requires education for its realisation, creating a co-constitutive relationship in which the practices of teaching and learning are devised to maintain the status and privilege of the human being at its core.

Kant's treatise on education makes clear that the human condition is contingent upon educational intervention, positing a broad programme of nurture, discipline, instruction and enculturation, that 'counteract man's natural unruliness' (2010, p12). Thus the appropriate human condition of 'Man' is impossible without education, yet the exceptionality of human beings themselves is preserved. Kant states, 'through education human nature will be continually improved, and brought to such a condition as is worthy of the nature of man' (Kant 2010, p13). Therefore, 'Man' requires education in order to fulfil the position of humanity to which he is ordained, in other words, 'his appointed end' (2010, p11). What we see here is Kant's preservation of human essence in the form of human *destiny*. It serves as a pertinent example of the ways that humanism has acknowledged the potency of education as a means to construct society, commandeered its disciplinary practices to justify its own ends, and yet preserved the preordained distinction and privilege of the very thing declared to be the result of deliberate intervention: the human subject.

Crucial here is the way that education operates to maintain the idea of an inwardly focussed and unitary being, or subjectivity. Such a formulation is levelled squarely at figures associated with the Enlightenment: Descartes's centring of the human cogito; its self-enclosure in the monad of Leibniz; and its autonomy in the reasoning of Kant (Biesta 1998). So infused, education is devised in terms of *interaction* between pre-determined and distinct subjects (or subject-to-be), comprised of the exchange of individual ideas or emotions,

thought to derive exclusively from the sanctity of their subjective reasoning (Biesta 1998). This scenario is conducted as a set of processes in which a student is subjectified by a teacher who is already a subject (Biesta 1998). Thus this particular formulation of human subjectivity is 'both the instrument and the end product of education' (Pedersen 2010, p241). If education is the realisation of a condition of knowing, then it is here premised on the constitution of a subject. In other words, the formulation of a unitary and self-enclosed human subjectivity becomes the foundation and precondition for the way that education is conceived and practiced.

In the 19th and 20th centuries mass education was positioned as the means for achieving the widespread public expectation that all humans should be included in the category of 'humanity' (Fuller 2010). The notion of the privileged and preordained human maintained itself in post-Enlightenment Romanticism, most notably in Rousseau's influential *Emile, or Education* (2010). As with Kant, the sanctity of the human subject is positioned as something requiring cultivation and protection, framing 'education as the teleological unveiling of the inner spirit of the human that leads to a community of consensus, harmony, and beauty' (Lewis and Kahn p60). Rose highlights how the idea of cultivation leads to the child becoming the increasing focus of educational endeavours and the institutionalisation of pedagogic practice, which view the shaping of the young mind to be ever more crucial to the formation of civil society (1999). Whilst maintaining the unquestionable truth of the subject, the shifting (and more inclusive) boundary of the human meant that education was no longer just perceived as the civilising of the non-human, or the conversion of *homo barbarous* to *homo humanus* (Heidegger 1949), but rather as the process of becoming *more* human. This process of reification not only intensifies the idea of the human subject through particular modes of performance, it also standardises, purifies and sustains the human as a specific and universal category of being. Pedersen draws our attention to the institutional process which, 'through a complex web of social processes and interactions, ... continually reinscribes and "closes" categories of "human" and "animal"' (Pedersen 2010, p241-242). This maintenance of species boundaries pushes education into the pursuit of strengthening the truth and authenticity of a normalised human subject. As Lewis and Kahn suggest, '[t]o educate is not simply to regain order over the disorderly but to render human that which borders on the animal' (2010, p67).

While on the surface the division between the intelligent and unintelligent has been the basis upon which human beings have been privileged, and their appropriation of other animals and

resources justified (Coole and Frost 2010), becoming ‘more human’ through education was never just a matter of the rationalisation of human thought. It also concerned the concurrent subordination and control of the body. As Lewis and Kahn illustrate through the description of Itard's education of Victor the wolf boy, 'biopedagogy' involves a discipline and training of the corporeal⁷; 'inscribing the social performance of class and gender into the body' (2010, p51). The influential educational methods of Froebel and Montessori also claim an active incorporation of the body (Rose 1999). The early 20th century remodelling of education (re)embraced the body as a site for management: '[p]hysical health was a virtue in itself but was also a prerequisite for mental development; somehow the exercise of the muscles was connected to the exercise and stimulation of the mind' (Rose 1999, p186). Furthermore, Rose illustrates how the establishment of compulsory schooling resulted in overcrowded institutions, a situation in which the proximity of bodies necessitated the classification of unhygienic conditions⁸ (1999). The learning body becomes a site of empirical purification through the technologies of medical inspection, strategies for health reform, and a political interest in the sanitised child as a ‘vital national resource’ (Rose 1999, p185). It is not just the mind that is cleansed of irrational thinking in the humanist project, it is also the body that is regulated in conduct and sterilised in composition. While this challenges a simplistic Cartesian logic in educational practice, it maintains the humanist drive for a purified subject; a rational mind *and* a mastered body.

It is in this process of refinement that the principles of humanism endure in theories that have considerable authority in contemporary educational practice and research. Enfolded in this movement is the influence of empirical techniques derived from the natural sciences, and, as exemplified by Froebel, Itard and Montessori, these methods often originated in the education of children deemed abnormal or pathological (Rose 1999). Thus, education as a process of humanisation becomes formalised as a set of dispassionate and objective methodological procedures, justified by the emerging social sciences which form the ‘prime vehicle of humanity’s self-realisation’ (Fuller 2011, p17). This normalisation of the human condition begins to cast human lives into ‘questionnaires, computer printouts, graphs, charts, tables, scores, and norms’ (Rose 1999, p187). Such modelling of the human through education is embodied in Maslow’s pervasive ‘hierarchy of needs’, an ordering which not only perpetuates the idea of education as a trajectory of rational progress and moral

⁷ However, while bodily gesture on its own could only constitute the replication of civilised gesture, language had to be incorporated to reveal the depth of bourgeois humanity (Lewis and Kahn 2010).

⁸ This is perhaps a significant point in the increasing use of technological immunisation that Baudrillard warns against: ‘It is not absurd to suppose that the extermination of man begins with the extermination of man’s germs’ (Baudrillard 2000, p34).

purification, but also denigrates bodily functions to the lowest phase (1943). The work of Carl Rogers further exemplifies the expansion of educational psychology in the 20th century; a scientific practice focussed specifically on the analysis of human behaviour (1979). While this brand of education was concerned with a holistic approach to mind and body (Usher and Edwards 2005), an authentic human subjectivity remains the bedrock and purpose of its method. Like Maslow, the objective of Roger's education is self-fulfilment, something achieved only through the realisation of an inner truth of personality or identity, and based on an inherent and biological 'actualising tendency' (1979). The supposed truth of an individual thus provides the basis for a student-centred education of empowerment and self-development (Usher and Edwards 2005). It might be argued that the ideals of open education achieve their zenith in the flexible, 'student-centred', and emancipatory offerings of the MOOC. Where education is centred on self-improvement and progress, both in terms of the individual and project of humanity itself, the 'self-motivated, self-directing, rational subject, capable of exercising individual agency' (Usher and Edwards 1994, p2) appears wholly suited to the independent and empowering experiences of open education.

I therefore suggest that the modernist project of education operates in a *co-constitutive relationship* with principles that maintain the humanist subject; both the transcendent and rational mind and the empirically verified body. Ideas about the autonomy and significance of the human being create the foundation and necessity for an education based on progressive, individualistic and emancipatory ideals, while schooling and instruction serve to sustain a foundational truth of human identity and being. This is a relationship of reciprocal validation in which education is not solely the 'the dutiful child of the Enlightenment' (Usher and Edwards 1994, p24), but also its protector. Education is consequently placed in an awkward position: it must acknowledge its central and necessary role in producing a particular type of human being, but simultaneously deny its potency by conceding that the very same qualities it works to instil are somehow already present. Ideas about the extent to which the human being is produced through educational practices are therefore at the heart of one of the fundamental tensions present in the contemporary debates surrounding open and digitally mediated education: that between teaching or centralised instruction, and self-direction or 'student-centred' learning. In other words, between education as a practice of intervention and control justified by transcendent ideals, and education as the activity of nurturing and cultivating innate potentials⁹.

⁹ This dichotomy resonates with Biesta's discussion of manipulative and communicative pedagogies in schooling (1998), and reflects the dimensions of Foucault's concept of governmentality (1988).

I contend that education has become established as the motor of the anthropological machine¹⁰, a procedure which continually functions to distinguish and differentiate the human being from the animal (Agamben 2004). This concept will be articulated further in chapter 5. Rather than exploring alternative ways of being in the world, education is locked into an endless cycle of humanisation; ‘the infernal repetition of the machine through endless permutations to classify the differences and similarities between human and nonhuman animals’ (Lewis and Kahn 2010, p48). Without foundation, without the deep truth of the human subject, validation can never be achieved, and education can only spiral further into the humane.

Critical Posthumanism

Posthumanism is a contested term which is often used to describe theoretical areas that are significantly different (Miah 2007, Wolfe 2010). However I suggest that it serves as a necessary umbrella characterisation for a range of approaches that are attempting to (re)assess the contemporary human condition. It has been associated with the disciplinary areas of cybernetics and informatics (Hayles 1999), distributed cognition (Hayles 2006), the cyborg (Haraway 2000), animal studies (Haraway 2003, Wolfe 2010), biotechnology and genetic engineering (Fukuyama 2002, Coyle 2006, Simon 2003), transhumanism (Bostrom 2005), cultural studies (Badmington 2000a 200b, 2003), and feminism and critical theory (Braidotti 2013). While the use of the term posthumanism may be inconsistent, in similar ways to those we have seen in relation to humanism, it becomes an unavoidable shorthand for thinking differently about the foundational human subject (Badmington 2000a). The diverse spectrum of posthuman theories can be categorised into four strands: critical posthumanism, which questions the primacy of the rational and autonomous ‘Man’ of the Enlightenment as the archetypal human being; anti-anthropocentric posthumanism, which takes this decentring further to question the privileging of human beings over other forms of life; transhumanism, the movement which seeks a perfection of the human condition through scientific and technological enhancement; and analytic posthumanism (Braidotti 2013), a field derived from science and technology studies which tends towards an empirical and politically neutral approach to the analysis of human and non-human networks and relations.

¹⁰ For Agamben, the functioning of the anthropological machine produces injustices, in both modern and ancient modes. The modern form produces the inhuman by ‘animalising the human’ (2004, p37), that is, identifying the non-human within the already human as a means of denying human status. Correspondingly, the ancient anthropological machine produces the non-human through anthropomorphising that which was considered animal.

As shall be illuminated, not all of these positions deviate from the principles of humanism *tout court*; however they do offer radical alternatives to commonly held views of the human subject, some of which are gaining influence in education and educational research. The task of this chapter is to develop a version of critical posthumanism appropriate to the task of theorising the emerging domain of the MOOC in this thesis.

Critical posthumanism is located within a wider post-foundational philosophy, which works against the establishment of truths and fundamentals upon which indisputable knowledge can be based. From such a position, theoretical claims about the world are not predicated on essential or innate qualities of existence, and thus defer from privileging the meaning-making capacity of the human subject as its principal concern. Prominent attempts to theorise beyond the confines of human essence are attributed to the work of Karl Marx and Sigmund Freud, the former privileging social context as the determining factor in human life, and the latter denying the totality of the cogito by replacing it with an abrasive and oppositional relationship between rational thought and unconscious desire (Badmington 2000a). Critical posthumanism also derives, as we have seen, from the anti-humanist critique, notably that of Jacques Lacan's non-ego focussed reappraisal of Freud¹¹ (Badmington 2000a).

However, Foucault provides the exemplary anti-humanist offering¹², exposing the underlying paradox in the modernist quest for objective truth, premised as it is on the Enlightenment assertion that 'Man' is both the source, and limit, of all knowledge (1989). Wolfe attests to Foucault's crucial role in laying the groundwork for posthumanism to emerge (2010a). Nevertheless, the difference between posthumanism and anti-humanism is crucial, and one of the keys to this distinction lies in the influence of poststructuralism. Poststructuralism, principally through the work of Jacques Derrida, questions the ability to theorise from a position that is a pure outside of humanism (Badmington 2000a). In other words, prognostications about the end of 'Man' are already prescribed in the language used, and by a being that is, at least, proximate to itself (Derrida 1969). It is this poststructuralist approach which critiques the dualistic relationship between humanism and anti-humanism;

¹¹ While Lacan's psychoanalysis is framed as non-essentialist, it posits a foundation of lack, consummated in the mirror stage where the subject becomes alienated from itself (2006). This differs considerably from the anti-foundationalist position of Foucault, for example.

¹² Nevertheless, Foucault's work has been interpreted in ways that are not strictly anti-humanist. As Biesta emphasises, the renowned assertion of the end of man was only a call for the end of the Kantian fusion of the autonomous mind and the empirical body (1998). Foucault's work can be viewed, not as suggesting the extinction of subjectivity, but as a project of theorising subjectivity beyond a rigid foundation from which 'knowing' can be taken for granted (Biesta 1998).

one that is structured to maintain the existence of both, and in which one is constituted by the negation of the other. This specific form of relation will be explored in detail in the next section, however in this context it signals the logical inconsistency of the anti-humanist orientation¹³: anti-humanism cannot exist without humanism, a premise which undermines its core argument. This is where posthumanism deviates from the anti-humanist stance. Rethinking humanism requires a non-oppositional approach that moves beyond the simple rejection of humanism, an insight which leads Braidotti to claim that it is impossible to be a coherent anti-humanist (2013). Necessarily tied to its opposite, the perpetual assertions of anti-humanism transpire to confirm and secure that which they seek to deconstruct, and risk ‘falling into a closed autism’ (Derrida 1969, p56). Moreover, to suggest that we have the agency and mastery to end humanism is somewhat humanistic in its assumptions (Braidotti 2013 citing Peterson 2011).

Critical posthumanism is ‘the historical moment that marks the end of the opposition between Humanism and anti-humanism’ (Braidotti 2013, p37), and it is with this assertion that we can clarify the specific use of the prefix ‘post’ in critical posthumanism. It is important not to understand ‘post’ as indicating a chronological movement that succeeds humanism, but rather one that questions the incontrovertibility of the foundational subject. Critical posthumanism does not supersede humanism, rather it destabilises it with the recognition that ‘we have *never* been only or wholly human, if by “human” we mean that creature familiar to us from the Enlightenment and its legacy’ (Wolfe 2010b, emphasis original). Anti-humanism, as with transhumanism, requires humanism for its own oppositional existence, yet, from the posthuman perspective, there is no essential or universal self-present human subjectivity to surpass (Hayles 1999). Critiquing the implications of historical linearity in Lyotard’s ‘post-modernism’ Dolphijn and van der Tuin frame the present as a ‘continuous rewriting’ in which the ‘[b]oth history and the future unfold from the now’ (2011, p384). This helps us to think about the status of posthumanism, not as a chronological phase that surpasses or opposes humanism and from which it is a direct consequence, but rather as a persistent reworking of the idea of human being¹⁴.

Posthumanism also has a lineage in cybernetics and cultural studies, and it is this coming together of biological systemisation and computational theory with the themes of science

¹³ Lyotard clarifies what would be an accurately non-human circumstance in the extermination of all human life; the only event which could be totally external to human thought (2000)

¹⁴ Indeed, posthumanism may share some of the aspirations and goals of humanism, principally emancipation (Dolphijn and van der Tuin 2011; Braidotti 2011, 2013).

fiction literature and film that serves as the context for rethinking the foundational subject of humanism (Badmington 2000a, Hayles 1999). As illuminated comprehensively by Hayles, the systemising tendencies of 20th century cybernetics reduced living organisms to reproducible technological arrangements (1999). Specifically, the three chronological and interrelating phases of homeostasis, reflexivity and virtuality, are suggested to privilege information over embodiment, blur subject and object distinctions, and demonstrate artificial intelligence respectively (Hayles 1999). The exclusivity of the anthropological was thus eroded in 'processes that removed the human and Homo sapiens from any particular privileged position in relation to matters of meaning, information and cognition' (Wolfe 2010a, pxii). Concurrent with this empirical and theoretical trend, Western film and literature in the latter half of the 20th century are proposed to exhibit this sense of loss in human authority and self-determination (Badmington 2000a, 2004). Also drawing on the immense archive of science fiction, Hayles's (1999) extensive writing on the influence of literature demonstrates the undermining of human exclusivity and bodily purity through such seminal works as Philip K. Dick's *Do Androids Dream of Electric Sheep* (2004), from which the film *Blade Runner* was derived, and William Gibson's *Neuromancer* (1984), which coined the term 'cyberspace'. Badmington underscores the significance of this amalgamation as the fictionalising of science and the scientification of fiction, in which 'one space has invaded the other, precipitating a change of style and mode of address' (2000a, p8-9). It is through this co-constitutive relationship between the seemingly contrary perceptions of science and fiction that critical posthumanism becomes concerned with envisioning shifting configurations of the human and non-human. The work of Donna Haraway is exemplary in interrogating the practices through which the frontiers between human and non-human are both established and undermined (2000, 2003). Critical posthumanism is thus concerned with articulating a relational and hybrid being, not one that is grounded in an undeniable essence, but that is intermingled in 'technical, medical, informatic, and economic networks' (Wolfe 2010a, pxv). The specifics of non-dualistic relations discussed in the subsequent sections will expand on this point.

These critical posthumanist interrogations of the foundational subject reveal important limitations in the concept of knowledge secured by the fabrication of the empirico-transcendental doublet. It is a restraint on two fronts, on the one hand the supposed universalism of a Eurocentric mode of human thought, but also the isolation and privileging of knowledge and cognition as solely human, amongst the broad and varied co-inhabitants of the earth. This (unethically, I suggest) unites all human beings according to abstract

qualities derived by a small subset of Europeans, a point with direct relevance to the MOOC, as will be introduced in chapter 4. As Badmington puts this assumption, “[w]e” may have different types of bodies, but because reason is a property of the mind ... deep down “we” are all the same’ (Badmington 2000a, p4). What is also significant in this fabrication of universalism is the context of religion in Europe. Monotheism is suggested to be ‘the religious precursor of the universalistic humanism that characterised Enlightenment thought’ (Fuller 2010, p237). It is particularly this Eurocentric humanism, the ‘delusion of grandeur in positing ourselves as the moral guardian of the world and as the motor of human evolution’ (Braidotti 2013, p25) that will become particularly important in the discussion of the MOOC, advocates of which often appear to assume indisputable benefits to the universalization of education. As shall be explored in the subsequent analysis chapters, MOOCs as a mode of cultural export may resonate with Fuller’s caution that ‘not all humans may benefit to the same extent and in the same way from the process of “humanisation”’ (Fuller 2010, p74).

Fundamentally, however, it is the normative desire of humanism that is problematic. Defining an archetypal condition, in whatever form, creates the very conditions for discrimination and inequality. This is the critical argument detailed in chapter 5. The renaissance of the classical form instilled the hegemony of the white European male over and above other human beings, however in more inclusive political and cultural instantiations, the same process establishes anthropos as the exemplary form of life, relegating ‘animal’, ‘plant’ and ‘non-living’ in a hierarchical taxonomy of control. Furthermore, the dominant subject of humanism imposes particular constraints and demands on our understandings of what knowledge is and can be. Thus the anti-humanist exposé of humanism has particular resonance for educational concerns: challenging the idea that the rational mind is both the source and limit of knowledge opens up new possibilities for (re)considering the context in which human cognition takes place, and what this might mean for the theorisation of learning and the devising of education itself. However, as we have seen, critical posthumanism is not in opposition to humanism, and thus offers potentially more than the anti-humanist critique. In order to explicate this position further, I now turn to a transversal of the dualist thinking that underpins the humanist (and anti-humanist) stance.

New Materialism

...what is humanism but a bladder full of hot air? (Davies 1997, p37)

New materialism concerns a *renewed* engagement with the ‘matter’ of the world in response to a theoretical domain perceived to over-privilege human cognition, culture and language (Coole and Frost 2010). As we have seen in the articulation of the empirico-transcendental doublet, the Cartesian separation of the mind as the source of rationality, autonomy and agency privileged cognitive human capacities, and not only devalued the body, but also rendered passive non-human matter in general. Education has emphasised this hierarchy through practices that maintain the human as 'the being that has language and reason as a supplement to mere animal life' (Lewis and Kahn 2010, p52). This marginalisation of the material is suggested to have been sustained in analytical and normative political theory, as well as in the radical constructivism often associated with postmodernism (Coole and Frost 2010). The emphasis on discourse and language in such approaches is sometimes perceived to negate the influence of matter and reduce the world to human representation:

Language has been granted too much power. The linguistic turn, the semiotic turn, the interpretative turn, the cultural turn: it seems that at every turn lately every “thing”—even materiality—is turned into a matter of language or some other form of cultural representation. (Barad 2003, p801)

However, this approach requires sensitivity. St. Pierre cautions new materialist approaches that have directed such critique at poststructuralism, suggesting that 'the *material* is always already completely imbricated with the linguistic and discursive in that work' (2013, p647, emphasis original). Law similarly attests to both Foucault and Derrida’s concern for the material (2004), while Mills contends that Foucault never denied materiality, rather discourse was suggested to be the only way to apprehend it (1997). Furthermore, St. Pierre claims both Foucault and Derrida explicitly critiqued the phenomenological 'representational logic that separates language from materiality' (2013, p652). To understand language as separate from matter is therefore to misinterpret poststructuralism (Sheridan 2002). Furthermore, Coole and Frost attest to the value and significance of the cultural turn in recognising and highlighting the problems of simplistic, reducible, representational and naturalistic accounts of matter (2010). It is therefore not a return to the matter of traditional positivistic natural science that is called for, but ‘a theoretical rapprochement with material realism’ (Coole and Frost 2010, p6). Rather than eschew the practices of contemporary science, work in this area often makes connections with theoretical physics (Barad 2007, Coole and Frost 2010) and mathematics (DeLanda 2002), troubling the boundaries, not only between disciplines and methodological approaches, but also the dualistic ordering that separates realism and constructivism (van der Tuin and Dolphijn 2010).

New materialism is not a unified theory (Coole and Frost 2010); however Manuel DeLanda and Rosi Braidotti are specified as key theorists (van der Tuin and Dolphijn 2010), and it is primarily through this work that the significance of the monist philosophy¹⁵ of Giles Deleuze (Deleuze 1994, Deleuze and Guattari 1987) is detectable. It is important here to distinguish the Deleuzian interpretation of monism from the much earlier philosophical work that influenced it, principally that of Spinoza (2004). While Spinoza's monism suggests that 'matter is one, driven by the desire for self-expression and ontologically free' (Braidotti 2013, p56), it positions God or Nature as the single *substance* from which everything is derived. Deleuzian monism replaces this idea of substance with a notion of *process*. Rather than considering the world to consist of standardised, stable and tangible matter, a position which would resonate with atomism and essentialism, Deleuze proposes a fundamental self-organising and differentiating process (1994). Thus, 'materiality is always something more than "mere" matter: an excess, force, vitality, relationality or difference that renders matter active, self-creative, productive, unpredictable' (Coole and Frost 2010, p9). In other words, while new materialism commits to a world of matter, it is not rendered passive, external to humans, stable or directly tangible. Rather, matter is considered fluid, autonomous, capable of agency, and to engage in 'dynamical processes' (DeLanda 2000) within which humans are merely constituents. For Deleuze, the underlying process through which all matter relates is termed *becoming*¹⁶ (Deleuze and Guattari 1987, DeLanda 2002, Stagoll 2010). Becoming is a central concept in the Deleuzian ontology, which foregrounds the idea of continual, non-teleological change rather than abstract and static identity. Thus Deleuzian monism rejects predefined unities, totalities, or overarching structures, foregrounding instead dynamic processes that continually manifest difference in a common world of relations, interconnectedness and proximity. For Braidotti, these monistic principles are 'the building blocks to the posthuman theory of subjectivity that does not rely on classical Humanism and carefully avoids anthropocentrism' (2013, 56). The dilemma of a 'posthuman subjectivity' will be examined below in the section on the posthuman.

The transversal of philosophical dualisms is considered one of the primary contributions of new materialist theory (van der Tuin & Dolphijn 2010, Dolphijn and van der Tuin 2011), and it is the insights of poststructuralism that provide the basis for this critique. As outlined

¹⁵ van der Tuin and Dolphijn suggest, through the Deleuzian notion of a 'minor philosophy', that monist thinking has been historically marginalised and radicalised by a dominant dualistic tradition of thought (2010).

¹⁶ Massumi attests to the difficulty of articulating 'becoming' in itself, because such a definition would already constitute what it has become (1992).

previously, dualisms are conceptual orderings based on negative and hierarchical relations¹⁷. In other words: that which are related are defined solely through the negation of that which they are related to, and the association forms a hierarchy of pejorative difference. For example, the subject can only be distinguished as the pure opposite of the object, not as an entity in itself. Furthermore, it is privileged with agency and rationality over the assumed passivity of the object. It is just this kind of relation that is deep-rooted in the transcendental thinking and the essential agencies or identities of Western thought, underpinned by a privileging of epistemology over ontology (Edwards 2010, Dolphijn and van der Tuin 2011, St. Pierre 2013). Constructivism continues this post-metaphysical stance, in which signification is emphasised over substance, culture over nature, and by implication, mind over matter, thus failing to overcome a core dualistic thinking. This will be developed in the section on posthuman knowledge.

In attempting to cut across the interrelated habits of transcendentalism and dualism which underpin humanist thinking, van der Tuin and Dolphijn propose three central modes of transversal: *immanence*, *intra-action* (van der Tuin and Dolphijn 2010) and *difference* (Dolphijn and van der Tuin 2011). The first derives from the radical immanence of Deleuze, which is proposed to counter a dominant focus on relations of transcendence in metaphysics (Williams 2010). Within a transcendent metaphysical framework, things are defined according to the ways they might relate to abstract principles or models, creating a hierarchy in which worldly forms are measured against a higher domain of values. Immanence proposes that things are defined according to the ways they relate *in* the world, rather than *to* archetypal and speculative norms (Williams 2010). Immanent relations are the workings of the monist world of Deleuze, in which all forms become through relations with each other. This relational process of becoming is also termed *intra-action*¹⁸ (Barad 2007). Rather than ‘interaction’ which presumes anterior agencies or identities preceding a relation, ‘intra-action’ suggests that entities exist entirely through relational processes, without any kind of identifiable pure essence.

As a salient example of the transverse potential of immanence and intra-action, van der Tuin and Dolphijn consider the often supposed opposition between the technological and the natural (2010). From a new materialist perspective a core ‘technological’ cannot act upon or

¹⁷ Braidotti attributes much of this negative oppositional thinking to Hegelian dialectics, and the subsequent Marxist Hegelians (2013).

¹⁸ I propose that, within the context of this thesis, the concepts of ‘intra-action’ (Barad 2007) and ‘becoming’ (Deleuze and Guattari 1987) correspond and can be used to connote the same process of relation change.

in conjunction with a core ‘natural’ because these categorisations are the results of relations with each other, rather than pre-existing forms. The technical and the natural come into being as the effect of relational practices of intra-action. Furthermore, such relations do not constitute a separation or a distinction between different identities because this would rely on the existence of an external or transcendent principle outside of the relation process. This is expressed succinctly in Hayles’s comment on the relationship between humans and technology: ‘[w]hat we make and what (we think) we are co-evolve together’ (2006, p164). This concept underpins the critique of technology instrumentalism employed in the later analysis chapters.

Alongside the intra-action and immanence which provide the conceptual tools to theorise relations, interminglings and proximities, Deleuze’s notion of *difference as a process* (1994) also offers a way to accommodate singularity and particularity without undermining or contradicting the monist rejection of identity and essence. Dolphijn and van der Tuin describe their transversal of dualisms as a process in which ‘difference is shown *differing*’ (2011, p389), a phrase derived from the Deleuzian concept of *difference in itself* (1994). Dolphijn and van der Tuin suggest that when the dualism is pushed to its extreme it is revealed, not to operate through a negative relation to an opposite or an analogy, but rather to constitute itself through a process of internal difference (2011). For Deleuze, difference in the established sense presumes stable identities or categorisations to which things can be compared (1994). In other words, difference is a variance from a standard, a rule, or an archetype; a transcendent identity from which things can be grouped and ordered as distinct or dissimilar according to a property of reason: difference as identity, analogy, opposition and resemblance (Deleuze 1994). Yet, as we have seen, within an immanent framework there are no abstract standards by which to categorise the things of the world; there is no ‘sameness against which variation can be observed or deduced’ (Stagoll 2010, p74). Deleuze views such practices of comparison and arrangement as a simplification that masks the particularity and uniqueness of things, concepts, instants, or perceptions (1994). This is the notion of *pure difference*, or difference as the relational manner through which individuation occurs, rather than difference as a posterior measure of pre-existing categories. Put simply, ‘difference is not a concept but a process’ (Braidotti 2011, p172). Therefore to ascertain the *difference* of a concept, entity or perception in the Deleuzian sense is to explore the specific and particular processes that constitute their *becoming*, rather than relating them to transcendent categories by which they can be grouped. Furthermore, this difference is positioned as affirmative; Deleuze ‘conceives difference not negatively, as lack of

resemblance, but positively or productively, as that which drives a dynamical process' (DeLanda 2000, p4). Deleuze asks, 'instead of something distinguished from something else, imagine something which distinguishes itself' (1994, p28).

As we have seen in this section, the concepts of immanence, intra-action and difference provide productive tools for rethinking the dualist frameworks that dominate Western thought. In the next section, I will consider the dualistic thinking that is maintained in education, and discuss how a new materialist transversal might offer an alternative theoretical framework. The concepts of immanence, intra-action and difference also inform the methodological approach of this research, as shall be discussed in chapter 3.

Rethinking Educational Dualisms

What is at stake here is nothing less than a challenge to some of the most basic assumptions that have underpinned the modern world, including its normative sense of the human and its beliefs about human agency. (Coole and Frost 2013, p4)

Positivism, postpositivism and constructivism maintain a dualist orientation that separates and privileges the idea of a knowing subject (Edwards 2010). I suggest therefore, that educational research which is premised on these philosophical principles tends to sustain a subject | object dualism in which the latter is subordinated to the former. Both positivism and postpositivism inherit from the natural sciences the ideal of untainted access to objective reality. While positivism contends that such admittance is possible through rigorous method, this sentiment has largely been replaced with postpositivism, which acknowledges the ways that individuals construct their own reality, but preserves the ideal of objectivity through acknowledging the influence of biases. Nevertheless, postpositivism maintains a hierarchical separation between the research subject and the object of study, where, despite the concern for biases, the task is to render the latter entirely knowable by the former. In contrast, forms of constructivism are often premised on the idea that knowledge is fashioned through social relations rather than objective discovery. However, as DeLanda suggests, while social constructivism works against the positivist ideal of essential realities, it tends to replace such inclinations with human experience or perception, thereby leading to a 'social essentialism' (2006, p46). In this way, the distinction of the 'social' and the 'natural' is upheld; one privileged world of humans, and another of objects and things.

Eisner goes some way to addressing the problematic assumptions of dualist thinking by identifying the subject | object dualism of the Enlightenment as the cause of a problematic separation of inner mind and external world (1992). However, a constructivist position is largely defended over an empirical one (Eisner 1992). While Eisner appears to recognise a transactive relationship between the human beings and the world, the reasoning mind is preserved as the means for recognising the faults of objectivity, and ultimately as the measure of justifiable research. This provides a salient example of the ways that educational research tends to either propose constructivism as a *solution* to positivism or as a *moderation* of extreme subject | object positions, rather than challenging the underlying binary.

Both the desire for objective mastery in positivism, and the tendencies towards subjective knowing in constructivism remain within the confines of a dualistic mode of thinking which privileges the humanist subject at the source, 'like the infinite play of images between two facing mirrors, the epistemological gets bounced back and forth, but nothing more is seen' (Barad 2003, p830). This maintains the ontological | epistemological ordering of humanism which privileges and detaches a 'knowing' human mind from a passive external world (van der Tuin and Dolphijn 2010). Positivism and phenomenology (in other words also quantitative and qualitative methodology¹⁹) both reply on the representational logic of humanism (St. Pierre 2013). As a consequence for educational research, St. Pierre argues that supposedly radical theories such as postmodernism and poststructuralism 'have had little effect on the humanist underpinnings of qualitative inquiry, chiefly because its ontology remains intact' (St. Pierre 2013, p649).

As we have seen, new materialism provides a way of moving beyond the limitations of dualisms by recognising the *commonalities* of realism and constructivism, rather than their negative differences (van der Tuin and Dolphijn 2010). However, I stress here that the 'ontological turn' in philosophy (Braidotti 2011, Pickering 2002) that is often associated with new materialism needs to be understood, not as a turn from the centre of a dualism, that is, towards ontology and *away* from epistemology, but a turn *back* to the centre; towards an onto-epistemology (Barad 2007) and a 'natureculture' (Haraway 2003). Work in new materialism often attempts to foreground the ways that the disciplines of science have long dismissed rigid Cartesian distinctions that separate subject and object (Barad 2007, Coole

¹⁹ I suggest that recent calls for 'mixed methods' in social science research does not reconcile the difference between quantitative and qualitative; it merely couples two distinct approaches which remain intact and divided along the subject | object division.

and Frost 2010), and it is in this direction that I suggest educational research can productively engage.

Furthermore, the positioning of new materialism in relation to dualism, as well as other theoretical movements, resonates with the previous articulation of posthumanism to humanism and anti-humanism. As a non-oppositional concept, new materialism does not deny or supplant dualism; rather it is immanent and intra-active *with* it. New materialism continually rewrites the present (including the ideas of dualism) in a process through which ‘a past and a future unfolds’ (Dolphijn and van der Tuin 2011, p390). Dolphijn and van der Tuin contend that a theory can only be described as original if is *not* claimed to be the succeeding phase of a chronological and progressive narrative (2011). As we shall see in later chapters, this specific critique will resonate with the claims of disruption and revolution often declared by advocates of the MOOC. Thus the non-dualistic affirmative agenda of the new materialist posthumanism described here will provide a tangible way to think beyond both the rhetoric and criticism of the MOOC.

The transversal of dualisms discussed in this section has important implications for the theory of posthumanism articulated in this chapter. As shall be discussed in the next section, the escape from subject | object distinctions is not straightforward, and work in the area of posthumanism sometimes leans towards new and alternative forms of subjectivity. The sensitivity towards dualistic thinking discussed above will inform this discussion, and allow me to clarify how posthumanism can signal a theorisation beyond the subject in the discourses and material practices of the MOOC.

The Posthuman

This chapter has described in detail the analytical abilities of posthumanism and new materialism in critiquing the deep-seated assumptions of humanist philosophy; however it also provides potent conceptual devices for theorising the question of the subject. As discussed previously, educational practices are entwined in the construction of the learning subject, according to the humanist principles of autonomy, rationality and universalism. The notion of the subject I take forward in this thesis is therefore one in which the discourses, practices and materials of the MOOC act to purify a humanist configuration of uniform and self-directing learners. In subsequent chapters, these processes will be shown to be not only fabricated as totalising claims on the learning subject, but also limiting as the ideals and aims of an affirmative and emancipatory project of education. The purpose of this

section is therefore to draw on theories of posthumanism to think beyond the subject, and to suggest the value of such ideas for the project of the MOOC.

I propose two concepts as a way of approaching the question of the subject in posthumanism. Firstly, I outline a notion of *hybridity* in order to understand a non-dualist, sociomaterial condition of the human being, and develop this through the concept of the ‘fold’ (Deleuze 1991, Braidotti 2000, O’Sullivan 2010). This allows me to describe the particularities of human being without defaulting to the subject. Secondly I suggest *openness* as a way of theorising posthumanism beyond a project of subjectivity, as a process of forming relations in a way that defies a subject | object dualism. To ground these concepts I draw on Coole and Frost’s claim that ‘living matter structures natural and social worlds before (and while) they are encountered by rational actors’ (2010, p20). I interpret this to suggest, firstly, that material processes are recognised as foundational, self-organising and prior to what is categorised as the humanist subject. Secondly, that that classified as rational human perception is acknowledged as a hybrid condition that is always an entanglement of the material and the representational. Thirdly, that specifying ‘rational’ identifies a particular and dominant human condition, but also leaves open the possibility of new and different encounters in the world.

To begin this section, it is important to differentiate between the abstract categorisation of the ‘human subject’ and the biological classification of ‘human being’, in a way that does not reassert a ‘social’ and ‘natural’ opposition. As I have described previously, self-organising processes of matter constitute the monist ordering of the world, yet they also account for the production of difference. In an explanation of species variance, DeLanda describes a philosophy of morphogenesis, involving a material process which:

gets rid of all *transcendent* factors using exclusively form-generating resources which are *immanent* to the material world [where] species are historically constituted entities, the resemblance of their members explained by having undergone common processes of natural selection, and the enduring identity of the species itself guaranteed by the fact that it has become reproductively isolated from other species. (DeLanda 2002, p10 emphasis original)

DeLanda’s point here is to foreground the material factors that contribute to the classification ‘human being’ (2002). Rather than beginning with an abstract category, morphogenesis focusses on the contingent and relational processes of *differing* through which things *become*

(or intra-act) in singular and particular ways (DeLanda 2002). Importantly, this does not deny species categorisation by humans; it merely situates it correctly as an ordering of the world subsequent to material forces that influence, and are part of this entangled process. Moreover, this is not to say that species classification by humans is abstract, or immaterial. As one example, the work of Pedersen demonstrates vividly how taxonomies that designate particular living things for human consumption, not only plug back into material processes through breeding interventions, but also influence widespread industrial and economic systems (2011, 2013). In other words, human categorisations of things may be subsequent to material processes, but they still make a material difference. Furthermore, DeLanda's example shows how the process ontology of monism not only constitutes material difference rather than sameness, but also demonstrates how particular assemblages might solidify, such that further openings and alterations become limited (2002). Processes of becoming (or intra-action) are not unrestricted; things cannot simply become anything (Coleman and Ringrose 2013).

As suggested previously, the 'human subject' can be understood as a discursive, socially constructed categorisation, assuming qualities such as rationality and autonomy to exist as part of the classification of 'human being'. The 'human subject' is therefore a particular assumption about the human condition; one that proposes essential, foundational characteristics, rather than the monist processes of construction, relation and becoming. Thus, I suggest that the construction of the 'human subject' can be understood as a practice of purification, in which an 'inside' of recognisable humanist characteristics is preserved from an 'outside' of difference and change (Lewis and Kahn 2010). This is best articulated in the boundary-making and enclosing motions of the anthropological machine, in which the human subject is continually defined, delimited, and circumscribed as *different from* (Agamben 2004), premised on the assumption of unique human qualities. Crucially, however, this does not mean that the 'human subject' is materially insignificant; what counts as human by such measures has led to significant discrimination and inequality within the same species (Fuller 2010, Braidotti 2013). Furthermore, as subsequent chapters will demonstrate, dominant notions of the human subject are materialised in the practices and technologies of the MOOC, shaping how participants act and are acted upon, thus constituting a tangible and powerful material influence. The category of 'human subject', therefore, cannot be wished away by posthumanist theorising; it is a construction with discursive and material power.

Therefore, while an ‘elemental ontological unity structures the debate’ (Braidotti 2011, p223), the ‘human being’ is not simply a ‘natural’ category, or the ‘human subject’ a purely cultural one, rather they are both *hybrid* assemblages, in which the social and the material intra-act. For ‘us’, the material is not ‘matter-as-opposed-to-signification’ (van der Tuin 2010, p155), but rather a ‘mattering’ that is concurrently material and representational (Barad 2007). Thus, while Coole and Frost suggest that ‘cognitive capacities for symbolism or reflexivity’ are simply ‘diffuse, chance products of a self-generative nature’, they also recognise their simultaneous materiality, and potential value (2010, p20). In other words, I contend that a ‘flat’ ontology does not mean that ontology simply replaces epistemology, but rather that the material and the representational are recognised as being produced simultaneously and non-hierarchically. To reject epistemology entirely appears to remain with an epistemology | ontology dualism. This runs the risk of assuming a direct relationship with reality, and denying not only the power and establishment of the human subject in Western thought as constituting a material process in itself, but also the ways that our access and connection to the world is complicated by embodiment, corporeality and mediation.

I suggest that a tendency to preserve dualist thinking can be found in the work of prominent posthumanist thinkers, and these positions can be productively explored in order to fully articulate my position of hybridity.

Hayles’s historical account of posthumanism in *How We Became Posthuman* (1999), emphasised by the past tense of the title, implies a condition of arrival. While not entirely the thrust of Hayles’s argument (1999), this interpretation is indicative of what I suggest is a divergence in the objectives of different areas of posthumanism. If a posthuman condition is construed to be the culmination of already distributed actor-networks of humans and non-humans, the logical approach of a methodology such as STS is to follow the relations and determine the already-present assemblage. This implies a particular role for posthuman theory: analysis. Framed in this way, the theoretical contribution of posthumanism is limited. Roden criticises Hayles’s posthuman on the grounds that it denies the possibilities of ‘envisaging certain transcendent posthumanist itineraries involving the emergence of artificial minds from new technological configurations of matter’ (2010, p9). Essentially, Roden views the ‘already posthuman’ claim of Hayles (1999) as suggesting there is nothing else that can be done; posthumanism has already arrived. While it might be argued that this isn’t necessarily the position that Hayles (1999) argues, there is a fatalist tendency in the idea

that posthuman theory is merely an opportunity for posthuman subjects to straightforwardly analyse already-existent states.

Braidotti highlights just such a tendency in ‘analytical posthumanism’ (2013), deriving from science and technology studies (STS) and developed through approaches such as Actor-Network Theory (ANT). A stance of ‘anti-epistemology and anti-subjectivity’ has been suggested of the work of Bruno Latour, while analytical posthumanism in general has been accused of dangerous apolitical and unethical neutrality (Braidotti 2013, p39). Similarly, Mutch cautions the assumed ease with which the ‘material’ or the non-human might be perceived or identified in sociomaterial studies (2013). Al-Mahmood contends that ‘ANT has a flat view of human agents, reducing them to effects and denying the embodied, emotional nature of human existence’ (2011 p71). Nevertheless, work in ANT and the sociomaterial has claimed the ability to trace manifestations of power (Fenwick and Edwards 2010, 2011), significantly for education, revealing the ‘materialist dynamics of oppression, exclusion, transgression and agonism that are at play but often overlooked in educational processes’ (Fenwick and Edwards 2013, p60). Law also provides a nuanced approach to ANT that rejects rigorous procedure and systematic method as ways of gaining admittance to reality (2004). Nevertheless, I suggest that some ‘analytical’ approaches to posthumanism can tend towards a rational annulment of the situatedness, particularity and embodied condition of the perceiver. While I will draw from these methods in this thesis, I contend that there is no pure or reducible ‘material’ or non-human to be discovered; only hybrid and intra-active relations all the way down²⁰.

In contrast, the Deleuzian-informed posthumanism of Braidotti claims an agenda of affirmation and emancipation (2006, 2011, 2013). However, I suggest that this can swing the other way: towards a reassertion of the subject. Here, posthumanism is framed as an opportunity for theoretical creativity, for envisioning novel and affirmative relations, rather than focussing solely on analysis or critique. This move towards the affirmative is related to the Foucauldian differentiation of power, as both the negative and oppressive *postestas* and the productive capacities of *potentia* (Braidotti 2011). Braidotti suggests that what is positive and negative in *postestas* and *potentia* is not so in the psychological sense (2011). Rather, they refer to an increase or decrease in the propensity to intensify and accelerate relations (Braidotti 2011). Massumi also emphasises the Deleuzian ‘concept’ as a moment

²⁰ Paraphrasing ‘the world is “relationality all the way down” Hayles (2006) in reference to the work of Donna Haraway, and the regressive argument of the Münchhausen trilemma (see Mautner 2005).

of creation and invention, rather than representation or description (2002). In other words, the Deleuzian approach is to use concepts to think differently through experimentation, not to demonstrate their correct application through replication. This ability to not just critique or analyse, but create *new* concepts is a crucial aspect of the ethical dimensions of Braidotti's posthumanism²¹ (2013). Significantly, however, this serves as a salient example of ways that posthumanism often retains aspects of humanism and notions of subjectivity.

Although Braidotti's work is a crucial influence, in that it both rejects comprehensively essentialism and foundational philosophy but also relativism and apolitical impartiality, it appears to purposefully retain the figuration of a posthuman subjectivity as the source of conceptual creativity (2011, 2013). In this sense, I suggest that it could be considered a continuation of the work of Foucault, itself interpreted as the theorisation of the non-foundational subject (Biesta 1998). The influence of Haraways' situated epistemology (1988) is preserved in Braidotti's feminist materialism (2006, 2011), such that posthumanism can be considered 'materialist and vitalist, embodied and embedded, firmly located somewhere' (Braidotti 2013, p51). However, this can tend to rearticulate a subjective position through which forms of intention and agency can be situated.

Following this, I suggest that the anti-anthropocentric recognition of place-in-the-world is delicate. It needs to embrace the possibilities of affirmative agency and presence without stepping too far into assumption, mastery and control (of a humanist subject), or slipping back into the fatalism or apathy of an uncritical flat ontology (and an uncritical relativism). In this sense I recognise the potentially productive contribution of that categorised as the human; not as a latent source of autonomous reasoning in the form of the humanist subject, but as a point of particular intensity in the coming together of multiple relations, both material and symbolic. So, although I reject the potential crypto-objectivity of some approaches labelled as analytic posthumanism, I also want to distance the notion of posthumanism developed in this thesis from a project of subjectivity, while still accounting for the specificity and potential value of human being. In order to do this, I turn now to the concept of the fold.

²¹ This aspiration is motivated by an acknowledgement of the potential power imbalances, governance and control that the posthuman condition generates. For example, Pedersen discusses how subject boundary dissolution potentially serves those already in power (2011), while Braidotti highlights the ethical dilemmas engendered by technological advances in warfare and genetic engineering (2013).

Braidotti describes the Deleuzian ‘subject’ as a folding inwards of external influences and a simultaneous folding-outwards of pre-perceptive material processes, or *affect* (Braidotti 2000). This is developed from Deleuze’s concept of the fold, which describes a correspondence between an inside and an outside; ‘the coils of matter, and the folds in the soul’ (1991, p227). In other words, there is neither a rift between subject and object, nor a reduction to either extreme. Rather, there is a fold which preserves the ontological unity of ‘humans’ and ‘world’, and also, I suggest, allows us to account for the specificity of our hybrid embodied-and-enculturated condition. The fold is significant for two reasons. Firstly, it expresses an active correspondence rather than a strict division; a subjective and an objective as a movement and continuity, two sides of the same plane. This prompts us to think of the human being as a persistent folding in of the outside, in which representation is nothing more than a folding of matter, culture a folding of nature. In such a fold, an interior is considered merely the fold of an outside, and therefore not something with an inherent internal identity, nor something autonomous and independent from the outside. In this sense, the fold provides a coherent way to theorise ‘subjectivity’ as a process of mastery over one’s being (O’Sullivan 2010), an idea which resonates with the humanist processes of purification suggested earlier in relation to the anthropological machine (Agamben 2004); routines which rationalise the wild outside of non-human material forces and flows. However, the fold is significant for a second reason: it leaves open the possibility of thinking creatively and differently about the human being, beyond the sanitising process of subjectivity (O’Sullivan 2010). In this sense, I suggest that the fold permits an opening to ‘[i]nnovation rather than exorcism’ in an ‘exopedagogy’ which embraces the creative possibilities of connections to the outside, and rejects the obsessions of humanist decontamination in the anthropological machine (Lewis and Kahn 2010 p72). This will be explored in chapter 7, where I consider the possibilities of thinking about a non-subjective participation in the MOOC.

The possibilities for posthumanism beyond the subject that I have outlined here offer tentative suggestion for alternative ways of perceiving the ‘open education’ of the MOOC. ‘Openness’, therefore, could mean the unfolding of hybrid relations through which educational participation is practiced differently, beyond a retreat to the sanctity of the humanist subject. As Edwards suggests, we could ‘move beyond the concept of learning as a purpose of education more towards a purpose of responsible experimenting’ (Edwards 2010, p11). This leads us finally, and inevitably, to a discussion of knowledge.

Posthuman knowledge

The posthuman and new materialist examinations of dualistic thinking in this chapter entail significant implications for the way that knowledge is currently understood in education and educational research. The fundamental separation between the subject and the object has established a notion of knowledge as either individually or collectively cognitive. This is an effect produced by positioning reality as independent and anterior to the thinking mind of the human being, an orientation which results in the ontology | epistemology divide in philosophy.

Edwards contends that contemporary philosophical enquiry in general, and particularly in educational research which is underpinned by ideas about relationships with knowledge, has tended to concern itself with the domains of epistemology rather than ontology (2010). However, if we conclude that education is largely based on questions about how knowledge comes about *within* human beings (as human subjects), we can see how it remains locked within the dualism. If knowing and knowledge are understood in epistemological terms, they are already interwoven within a particular ordering of the world; a dualistic ordering where 'such binaries already assume what they produce, insofar as the focus on knowing already presumes a relationship between matter and meaning, object and subject' (Edwards 2010, p8). In other words, what knowledge *is* has already been delimited by the predefined ontology | epistemological relationship.

From such a basis, educational interest in the imparting, cultivating or dissemination of knowledge is already situated within a particular ordering of the world which separates reality (ontology) from knowledge-about-reality (epistemology). Thus, the theoretical approach to learning has tended to be framed as 'learning *about* objects by subjects' (Edwards 2010, p7 emphasis original). It is this orientation that constructs knowledge as *representational*; as a *re*-cognition of an external object. From this already-constructed position 'the world is made up of objects "out-there" that we try to know "in-here" – within the knowing subject' (Edwards 2010, p10). The posthumanist (re)appraisal of humanism in this chapter has highlighted the way dualisms are so entrenched in Western thinking that the processes of their fabrication are habitually masked. It is the imperceptibility of the already-isolated subject that performs this sleight of hand. As Barad puts it, '[l]ike a good magician, representationalism would have us focus on what seems to be evidently given, hiding the very practices that produce the illusion of givenness' (2007, p360).

One way to breaking out of this fundamental philosophical binary is to acknowledge the commonality and concurrence of ontology and epistemology: their ‘onto-epistemology’ (Barad 2007). Within such a configuration, being and knowing become indistinguishable, and adherence to the underlying philosophical binary that divides them is transversed. Within such thinking, epistemology and ontology themselves are considered the effects of particular ways of ordering our relationship to the world, rather than being foundational categories within which *reality* and *ideas-about-reality* are situated.

Key to this claim is the proposition of immanent, as opposed to transcendental thought, an orientation which, I suggest, involves a fundamental challenge to education and educational research. Immanent thought regards the thinking of the human being, not as an isolated cognitive event which represents an external world from within the confines of the corporeal, but instead as a manifestation of the same generative and self-organising processes that constitute the entire monist reality itself. That is to say, thought is not entirely separated or disconnected from that which it thinks *about*; thought is not *transcendent* of its object. Nevertheless, the notion of the fold discussed previously allows us to account for the specificity of thought; its ‘folding in’ of material affect. Thought is therefore neither transcendent, nor negated as simply material, but rather an inside that was always already its outside. Immanent thought is therefore undoubtedly a humbling suggestion, not only for humanist philosophy which has prided itself on abilities of the mind to comprehend, distinguish, and gain a totalising view of reality, but also for the project of education which has often concerned itself with the development and intensification of knowing *about* the world.

Nevertheless, this thesis proposes that posthuman theory may offer a way for education to be reconsidered as a practice deeply involved and co-dependent with non-human factors; immanent to a relational and non-dualistic world. This may be a ‘*knowing in being*’ (Jackson and Mazzei 2013, p268, emphasis original), which attempts to redress an over-emphasis on transcendent and rational comprehension and consider other ways of *being in* education. This might then invoke an education of ‘mattering’ (Barad 2007), in which the material and the representational are acknowledged as deeply entangled. In other words, an education that does not necessarily privilege the rationalisation and separation of human thinking over a material world already enfolded in the processes of subjectivity. Such a move could therefore entail a shift from ‘representation to performativity, agency and emergence’ (Pickering 2002, p414), however I acknowledge the cautions in considering such

a move to be straightforward (St. Pierre 2013). Representation is the 'very field upon which the human sciences occur, and to their fullest extent; it is the very pedestal of that form of knowledge, the basis that makes it possible' (Foucault 1994, p363). As such, the potency of an engrained cultural representationalism cannot simply be denied (MacLure 2013).

In this chapter I have attempted to establish the co-constitutive relationship between the project of education and the formation of the humanist subject, as well as articulate a position with respect to the claims of a non-dualistic posthumanism. The purpose of the later analysis chapters will be to highlight the dominance of this humanist subject in the project of the MOOC, as well as to suggest the value of a posthuman perspective that looks beyond this framework as the foundational rationale for education. As suggested in the final section, the challenge to the primacy of subjectivity has significant implications for how we think about the construction or acquisition of knowledge. While this relates importantly to the way education might be theorised in this thesis, it also entails a particular approach to methodology that attempts to avoid dualist positions in the undertaking of this research. In the following chapter I turn to the discussion of methodology, and attempt to articulate an approach commensurate with the theories of posthumanism outlined here.

Chapter 3: Methodology

Introduction

This research undertaken for this thesis has involved the study of specific MOOCs, as well as the analysis of related academic publications, press articles, blogs and promotional material. The methodology consisted of an overlapping strategy of ethnographic participant observation of specific courses, and discourse and visual analysis of related material, in addition to a number of experimental methods involving the automated collection of data. This method assembly was adopted in order to explore the MOOC as a posthuman sociomaterial event.

I participated with varying approaches in five distinct MOOC offerings, and analysed a broad range of published articles and promotional material related to the area in general. This allowed me to gain a sense of the particular features of MOOCs as they unfolded, as well as an awareness of the wider debates, discussions and publicity that surround these courses. As shall be discussed below, several core themes were identified in this process: technological instrumentalism; ‘openness’ as admittance to information; institutional elitism; the under-privileging of the teacher; and the production and maintenance of a ‘learning subject’. The techniques of participant observation, as well as the analysis of visual communication and discourse in the emerging MOOC domain, were specifically designed to examine events in their relational entanglements of social phenomena and material influence. The aim of these methods was therefore to challenge the conventional ways in which MOOCs and their participants were being framed; as instrumental opportunities for rational and autonomous individuals to emancipate themselves through straightforward access to elite institutional knowledge. Through active and relational practices, the methods outlined below were designed to produce alternative understanding of the MOOC. These methods were intended to shape a different reality, one in which the MOOC is produced as a complex array of relations and contingencies deriving from hybrid human and non-human actors, and in which a critical understanding of MOOC practices becomes possible.

The first section of this chapter will describe the specific set of methods I have employed in this research. I will clarify how my research questions informed the choice of particular methods, providing a rationale for why particular procedures were chosen, and detailing the ways subsequent data was collected and organised. This section will also include the ways

these methods were arranged and scheduled in the research design, which strategies engendered problems and which were considered more successful. This is intended to provide a comprehensive overview of the way that this research was designed, how it functioned, and to suggest that it constitutes appropriate social science research at doctoral level. The methods outlined below were intentionally experimental. They were not expected to produce definitive knowledge about MOOCs, or to mandate their future. Rather, they were designed to develop, expose and accommodate new and unfamiliar ways of understanding this emerging domain, and this necessarily included the possibility of failure and insignificance.

The second section will draw upon the theoretical perspectives outlined in the previous chapter to provide a rationale and context for these methods, and to explain how this research approach should be understood. Developing the posthumanist and new materialist positions of this thesis, I will frame my methodological practice as a co-constitutive actor in the enactment of knowledge and the performance of the MOOC, as conceived in this research. This non-dualistic approach will challenge the strict divides between abstract theory and methodological practice, and the subjective researcher and objective event, as well as the separation of knowledge as a cognitive or social representation of reality. This approach will be articulated through the navigation of key research aporias (Lather 2001, 2006): subjectivity and objectivity; knowledge production; interpretation; validity; ethics; and power. It is not my intention to offer straightforward solutions to these issues, but rather to contend that there are none; only choices, routes and steerings through them. While the concepts expressed in the previous chapter may have challenged the idea of a comprehensible, specific, determinable and identifiable world, I acknowledge that this research is situated in a domain of social science in which these tendencies are prevalent (Law 2004). Therefore, it is not the task of this chapter to simply dismiss these problems, but rather to show that the particulars of their traversal is the very thrust of the research itself. As St. Pierre suggests, ‘we must learn to live on the middle of things, in the tension of conflict and confusion and possibility’ (1997, p176). As such Law’s notion of the ‘method assemblage’ (2004) will assist me to articulate the various facets of my methodological approach.

I suggest that this methodological approach is necessary to work towards better engagements with the complex and multifaceted contingencies of a globally diverse and technologically shaped education. As shall be discussed in subsequent chapters, current understandings of

the MOOC are substantially limited by humanist and anthropocentric assumptions that posit a simplistic universal human condition, and render spaces and technologies as passive or instrumental means to educational mastery. Therefore, methods which focus exclusively on human behaviour or learning merely amplify a predisposition to centre the rational and autonomous subject as both the foundation and purpose of education. As Postma contends, '[c]ritical traditions in education are largely characterised by rationalist and humanist assumptions which require an autonomous and rational human agent and which conceptualise transformation from a position of moral and cognitive privilege' (2012, p137). Such an approach may therefore end up bolstering the inequalities and regimes of control and dominance engendered by an uncritical humanism. I therefore suggest that 'critique as a sociomaterial practice is needed in order to counter the forms of domination, exploitation and oppression which lock individuals within realities that seem to be closed, inevitable and unchangeable' (Postma 2012, p144). The methodology of performative sociomaterial critique described here therefore acknowledges a position within distributed assemblages of agency, but also seeks to make new and different relations that make a difference.

This is not to suggest that this research is devoid of such issues, as will be discussed below. Nevertheless, I contend that the methodological approach outlined here works towards a broader engagement with the material and non-human contingencies that surround and shape the cognitive and the social of the MOOC, releasing education from its service to rational human subjects, and opening new avenues for considering the complex systems and flows that operate beyond the inference of 'learning'. The intention here was not to deny or negate the idea that the purpose of education may indeed be human learning, but rather to contribute research that explores the broader contexts in which such concepts are situated and maintained. Furthermore, this methodological approach did not provide me with the surety of finding anything specific, only the inclination that useful difference might be produced. As Jackson and Mazzei suggest, 'what matters more than certainty, accuracy, and authenticity are the relations, affects, and the machinic potential to interrupt and transform other machines, other data, other knowledge projects' (2013, p270). In this respect, the methodological approach unsettled many of my own assumptions and views, as well as insights gained from preliminary findings. Principally, this concerned the unexpected scale of ensuing MOOC activity, as well as the unanticipated desire for very traditional notions of teaching and educational space amongst observed MOOC participants. I suggest that these insights interrupted and transformed my research in productive ways. Methodologically, this also involved assumptions about the ease and simplicity of researching, and making

statements about, the non-human in research. As shall be discussed further below, the dilemmas of reasserting the rational subject in the form of the researcher, and reinstating the primacy of representational knowledge remain unresolved in this thesis.

Selecting and approaching MOOCs

Six MOOCs were chosen for various modes of participant observation: *Change11*; *Introduction to Computer Science*; *Modern and Contemporary American Poetry*; *Circuits and Electronics*; *The Modern and the Postmodern*; and *E-learning and Digital Cultures*. Table 1 provides further details. These courses provided me with comprehensive experience of the very beginnings of the large scale ‘xMOOC’ phenomena, as well as a basis in the earlier ‘cMOOC’ offerings. They were chosen in order to experience MOOCs from the range of providers and subject disciplines on offer at the time, as well as from partnerships with a variety of institutions. The first four courses in phase 1 of the research (see table 1) demonstrate my initial engagement with this field as a student, from the pilot study of the connectivist-informed ‘change11’, to the first wave of offerings from the principal platform providers, Coursera, edX and Udacity. Phase 2 allowed further consolidation of student participant observation, as well as the experience of teaching two instances of a large scale MOOC on the Coursera platform.

Table 1: The six MOOCs studied, detailing platform, institution, duration, research role, level of participation, and timing

	Title	Platform	Institution	Duration	Role	Participation	Timing
Phase 1	Change11	change.mooc.ca	n/a	35 weeks	Student	Reviewing	Sept 2011 – May 2012
	Introduction to Computer Science (CS101)	Udacity	n/a	7 weeks	Student	Active	Feb 2012 – April 2012
	Circuits and Electronics (6.002x)	edX	Massachusetts Institute of Technology	14 weeks	Student	Reviewing	May 2012 – June 2012
	Modern and Contemporary American Poetry (ModPo)	Coursera	University of Pennsylvania	10 weeks	Student	Active	Sept 2012 – Nov 2012
Phase 2	The Modern and the Postmodern (ModPost)	Coursera	Wesleyan University	14 weeks	Student	Reviewing	June 2013 – Aug 2013
	E-learning and Digital Cultures (EDCMOOC)	Coursera	University of Edinburgh	5 weeks	Teacher	Active	Jan 2013 – Mar 2013 + Nov 2013 – Dec 2013

These choices and roles are suggested to provide enough breadth such that I am able to form connections and parallels in this thesis that become significant and meaningful for a broad and productive understanding of MOOCs. The selected courses also required no prior skills or knowledge for student participation, allowing my encounter with these MOOCs to reflect some aspects of the intended student audience. I also considered the inclusion of a teaching role to be a crucial aspect of the ethnographic work, providing a wide-ranging sense of the MOOC that mere participation could never have achieved, and also a sensitivity towards the ways that teachers and students were being conceived of in MOOC literature and discourse. Nevertheless, the multiple roles adopted in this research were not straightforward, and problematic issues will be subsequently elaborated.

Furthermore, I acknowledge the selectivity here, such that the inclusion of the MOOCs in table 1 necessitates the exclusion of other potentially valuable sites of research (Fransman 2012). Following Law (2004), this selection process is very much part of the particular assemblage I make present through this research. While two of the MOOCs were carried forward into sustained critique (ModPo in chapter 6 and EDCMOOC in chapter 7), the other courses in table 1 demonstrate what is simultaneously absent in that choice of focus for analysis. In other words, the range of MOOCs experienced in this research are very much part of the methods assemblage (Law 2004) and shape the subsequent processes of analysis through their absence. Furthermore, I recognise that ‘Other’ (Law 2004) MOOCs will have been produced through this selection; courses that were situated as insignificant or challenging to the central arguments of this thesis. Thus, any claims I make about MOOCs in general result from the very specific contexts I have brought into being through this research, and are also therefore acknowledgements of courses that were made absent and rendered Other.

While MOOCs involve unrestricted and relatively straight-forward enrolment, access to particular activities and communities varied, depending on the intended level of participation in the individual design of each course. *Introduction to Computer Science*, *Social Network Analysis* and *Modern and Contemporary American Poetry* were chosen for more active participation, and for this purpose I sought permission from the course convenors to undertake ethnographic research and announced my position as a researcher in my course profile. I reviewed video lecture content from *The Modern and the Postmodern* after the course had formally completed, and therefore decided that permission was not needed. My dual position as teacher and PhD researcher in *E-learning and Digital Cultures* was made

clear in the introductory and profile information, as well as the general ethos of this course being announced as one of research and experimentation (Knox *et al.* 2012). While enrolment with Coursera and Udacity provide access to central web platforms, the structure of discussion fora, as well as varying use of supplementary and public social media, created spaces with differing community arrangements. Social involvement therefore required different levels of negotiation. These access issues had further implications which will be addressed in the section on ethics.

Approaching ethnography and participation

While my methods drew from established ethnographic approaches, concerned with the discovery of rich social interaction, behaviour and shared beliefs within particular groups and cultures (Bryman 2004, McQueen and Knussen 2002, Robson 2002), I also needed to remain sensitive to the posthuman and new materialist concern for the non-human. In order to develop this strategy I also drew from the research of digital environments (Hine 2000, 2005, Kozinets 2010, Miller and Slater 2000), multimodality (Dicks 2006, Pauwels 2005) as well as emerging methods such as connective ethnography (Dirksen *et al.* 2010, Fields and Kafai 2008) and sensory ethnography (Hurdley and Dicks 2011, Pink 2009). This rich body of ethnographic work helped me to remain alert to the complexities and sociomaterial entanglements of MOOC events, and the wide field of human and non-human constituents and influences by which they were comprised. This included the algorithmic aspects of the web, and the material and spatial qualities of educational environments, both in their online and offline effects, and considerations of *affect*, or pre-subjective force (which will be discussed further in the section on research design).

However such an approach was far from straightforward, and challenged many of the conventional implications of 'participant observation'. The term itself appears to suggest a distinct human autonomy and agency incommensurate with the theoretical basis of the research. Crucially, to recognise the MOOC as hybrid and relational, human and non-human, necessitated an acknowledgement of my own decentred and immanent position, placing into question the simple identification or discovery of events. A posthuman and new materialist ethnography, I suggest, is one that places into doubt, not only the ability to observe as a rational and autonomous subject, but also the very distinction of the researcher as a purely social entity.

This requires a clear position on the notion of participation. In table 1 I have indicated ‘active’ or ‘reviewing’ as categorisations, and while these terms might imply the maintenance of an orthodox position on human agency, I suggest that they constitute more nuanced positions. As suggested in chapter 2, the autonomous subject is decentred, rendering participation something other than constituted from my own rational and exclusive agency. This means that the role of ‘reviewing’ is not necessarily passive, nor is the role of ‘active’ inevitably influential. One example here might be the actual contribution I made to the MOOC ‘Circuits and Electronics’, despite the claim of ‘reviewing’. My ‘passive’ engagement, in the form of course enrolment and the viewing of content, was recorded in the research findings of Breslow *et al.* (2013). My ‘reviewing’ is therefore part of the Breslow *et al.*’s visualisations (2013) discussed in chapter 4, and the measuring of participation examined further in chapter 5. In short, ‘active’ or ‘passive’ participation in a MOOC is simply a product of the measurement strategy, thus highlighting its distributed nature. My own ethnographic approach concerns this problem of distributed agency, in the non-dualist, sociomaterial conditions I contend to constitute the domain of study. I view my participative roles of ‘active’ and ‘reviewing’ as non-hierarchical. In other words, I do not assume to gain more knowledge from active participation than from more passive involvement; both roles are within relational systems that are important for understanding the MOOC. This is not just because, as shall be discussed further in chapter 5, research has shown that considerable proportions of participants are measured as ‘auditing’ or ‘lurking’ within MOOCs (see Breslow *et al.* 2013, Kizilcec *et al.* 2013, Milligan *et al.* 2013, Ho *et al.* 2014), but more crucially that a rational form of participation is not privileged as a way of knowing in this research, or suggested to ‘adequately recognise the nature of materiality, [and] the materiality of regimes of power’ (Postma 2012, p137). Participation in this research is considered to be an engagement with the broader sociomaterial and hybrid human and nonhuman contexts of this global educational project, not simply the predefined activities and behaviours assumed of the universal and autonomous MOOC student.

The multiple data-collection methods advanced by connective ethnography were also influential in my ethnographic approach. Thus, the practice of ‘following the connections between texts, people and objects both online and offline’ (Dirksen *et al.*, p1059), proved to be a useful way of conceptualising a relational strategy that attempted to transverse, not only human and non-human distinctions, but also the ‘real’ and ‘virtual’ assumptions of working in the digital. However, this was not an empirical or rational approach, and as discussed in the previous chapter, I sought to challenge analytic strategies that can tend to re-centre the

rational humanist subject in the form of the all-knowing all-seeing researcher. I therefore drew from sociomaterial approaches to educational research (Fenwick *et al.* 2011) in developing the following methods, helping me to acknowledge and examine the agential influence of non-human connections and relations. This was a way of engagement with data traditionally considered inconsequential and minor in research practices (Hird 2009, Hultman and Tugachi 2010). Sensitivity towards transgressive data (St. Pierre 1997) was also vital as a way of attempting to engage with influences beyond those of conventional qualitative research, challenging the position of predetermined, rational, and bounded research subjectivity. The emerging field of 'post-qualitative' methodology was also therefore crucial to the following methods, through which I attempted to challenge conventional understandings of qualitative inquiry that privilege humanist orderings of representational knowledge (Lather 2013, MacLure 2013, St. Pierre 2013). The intention here was to 'produce different knowledge and produce knowledge differently' (Lather 2013, p635), yet also defying the unproblematic instrumentalisation of research methodology, such that it cannot be predetermined or predefined; only produced through active engagement (Lather 2013). In these ways, my ethnographic strategy was designed to expand the field of enquiry beyond the humanistic and the social. This was designed to work towards an understanding of education as a complex arrangement of co-emergent, interdependent and mutually constitutive factors, in which subjectivities (including my own) emerge 'in webs of interconnections, among heterogeneous entities: human and non-human, social discourses, activities and meanings, as well as material forces, assemblages and transformations' (Edwards *et al.* 2011, p2).

Methods

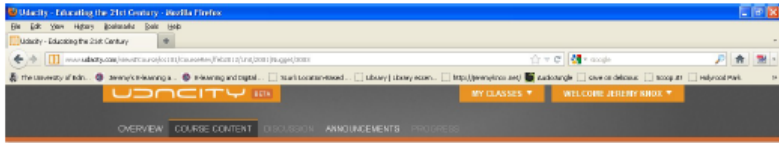
The questions guiding this research required an approach that was sensitive to the ways that particular educational assemblies, spaces, technologies and subjectivities form through MOOC participation and promotion, as well as able to provoke and generate new ideas and enactments of the events taking place. The following methods were therefore designed for two purposes: firstly to ascertain the ways that humanistic principles were being assumed, encoded and presented in the promotion, discussion and delivery of MOOCs; and secondly to suggest different and alternative arrangements beyond the subject, and to enact relational intra-action and hybridity. Therefore methods were required to be receptive to the nuance, detail and specificity of MOOC events, as well as being able to generate vivid and multifaceted accounts. The initial method adopted was the production of field notes, with which I recorded events, experiences and insights from MOOC participation, as well as the

general interrogation of related literature and discussion. This was combined with discourse and visual analysis, as a way of surfacing critique in the area of research (Howarth 2000), but also to critically examine specific artefacts from a relational materialist perspective, identifying broad contingencies and influences (Hultman and Tugachi 2010). In addition, a number of experimental methods were developed to explore hybrid ways of generating data in combination with non-human actors. These methods produced data from environment, location, bodily movement and algorithmic processes, with the use of sensor technology, and were intended to provoke and influence different ways of analysing my research data. In terms of the overarching research design and process, I suggest a method of ‘diffractive reading’ was undertaken to further associate, juxtapose and collide field notes, analysis, experiments and theoretical concepts. This technique was an experimental way of disrupting a linear approach to, and an orthodox arrangement of, social science research, and thus my own rational response to emerging data.

Field Notes

Programming is the core of computer science.

Learning the Python language – high level language, so it executes our program in the Python program, which itself operates the computer machine code.



What is a programming language?

- ☒ a language designed to be executed by computers
- ☒ a language designed for describing programs
- ☒ a language designed to be written by humans, and executed by computers
- ☒ a language designed to be read by humans, and written by computers
- ☒ a language designed to be read and written by humans, and executed by computers

INSTRUCTIONS COMMENTS SUPPLEMENTARY MATERIAL

Third attempt to get all correct! Strangely, he did say that you should choose the best answer...which I did and which was correct. Turns out you need to answer all that were correct. While these are inconsequential introductions, I'm finding myself getting a bit annoyed...

This first module is lecture quiz lecture quiz etc...not much variation. Not what I would deem exciting learning...

Figure 6: Section from field notes taken during participation in Introduction to Computer Science from Udacity

Regular notes were composed using both word processing software and paper-based notes. This combination was chosen to reflect the broad notion of ‘participation’ discussed previously, and an intentional exploration of ‘physical’ and ‘virtual’ methods. The domain from which this data collection drew was not necessarily limited to the MOOC courses themselves, but also included broader academic publications and media articles about this emerging field.

This was deemed necessary to research the wider contexts within which the MOOC was emerging, rather than simply the experience of participating in a course as a student. I also considered this to be an important way of exploring a broader notion of participation in research, engagement with wider discourse, and the practice of MOOC activity itself. Both digital and paper-based field notes thus allowed me to produce data at different moments and in the various activities of participation, as well as expand upon and develop significant moments and activities.

Word processing software was used initially for activity within a particular MOOC (see fig 6 for an example). This allowed me to incorporate screenshots from the various stages of the course, as well as notes related to content (seen in blue in fig 6) and more reflective comments (seen in black in fig 6). This arrangement allowed me to take shorter notes concurrent with instances of participation within courses, as well as providing the editing capacity for particular ideas to be developed later. The ability to colour text in the word processing software thus allowed me to separate comments into distinct categories representing different forms of participation. However, after trialling this technique in the initial stages I decided not to continue with such a separation, and began to see more value in continuous notes (see fig 7).

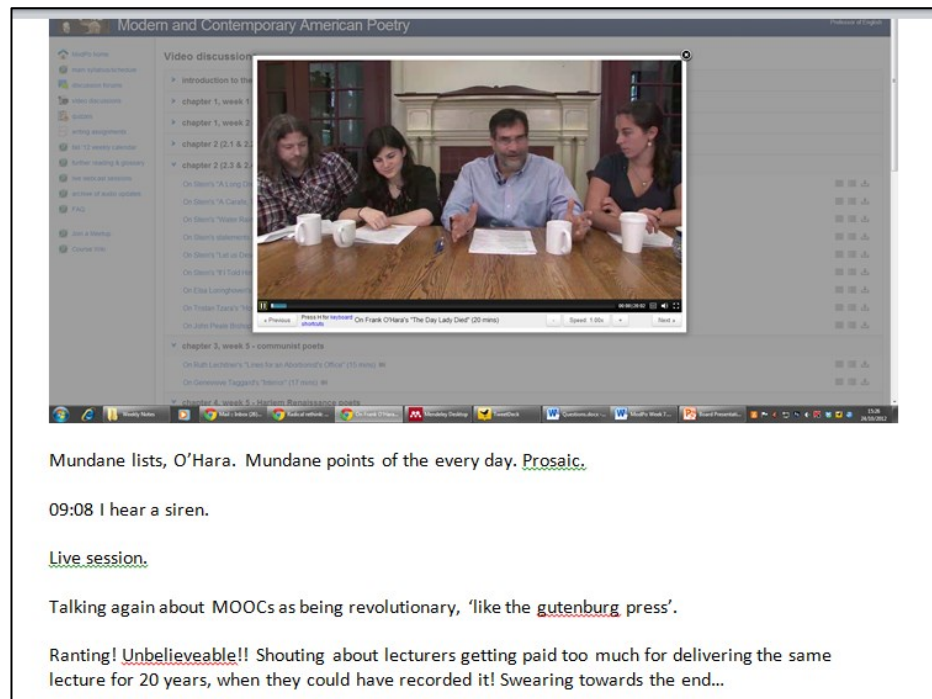


Figure 7: Section from field notes taken during participation in 'ModPo', showing notes from the video discussion and a subsequent live video session, as well as a screenshot showing multiple windows and applications open simultaneously.

As my practice of taking field notes developed, rather than focussing on the content of the courses, I started to include additional activities, and expand upon wider ideas and connections between MOOC events. This meant that the field notes started to become a site for documenting a broader sense of ‘participation’ in this research.

Figure 7 shows a section of the field notes from ModPo, and illustrates the use of screenshots, and notes from engaging with course content and a live video broadcast. The ability to incorporate visual elements such as screen captures or saved images allowed me to enrich and develop these notes as multimodal artefacts, increasing the possibilities for connections, relations and multiple readings of MOOC events, as shall be discussed in the ‘diffractive reading’ section below. The potential for bricolage, variance and juxtaposition in this method was intended to influence creative ways of (re)assembling the MOOC through my research, and stimulate different ways of thinking about this kind of educational event. Thus, this field note method was designed to have a role in shaping ‘new versions of the world...new signals and new resonances, new manifestations and new concealments’ (Law 2004, p143).

Additionally notable within the screenshot of the video discussion (see fig 7) is evidence of multiple windows and applications open at the time of taking the field notes, including other

word processing documents, web pages, presentation software, citation software, and social media. This shows how I was reading and engaging with additional material, related to the content of ModPo, but also to broader MOOC discussions. This demonstrates the often complex and multiple activities that surround ‘participation’ in a MOOC which are revealed here as manifestly absent (Law 2004) from the field notes. This is additionally important because it shows how the field notes were not simply the straightforward or exclusive result of my own rational and autonomous agency. I did not intend to evidence additional activities when taking this screenshot (see fig 7) however the functioning of the screen capture software played a role in documenting them. This recording of wider modes of ‘participation’, as well as the indications of non-human agencies influencing the production of the field notes, proved to be valuable content for the ‘diffractive reading’ discussed below.

The software used for this documentation necessarily constrained the ways that data could be saved and arranged. The linearity of word processing documents was one crucial influence, encouraging sequential note taking and limiting the possibilities for connection between entries. This is a salient example of the ways that established routines and materials of print echo into research practices in the digital. Fransman highlights how the fixing of research into the text of a thesis is another layer of selection that necessarily excludes and Others, and is ‘a matter of *recontextualisation*’ (2012, p140). I acknowledge that aspects of the research are included or excluded according to whether they correspond or conflict with ‘the (social or material) form of the text into which they are packaged’ (Fransman 2012, p141). In other words, my field notes developed according to the material constraints of the word processing software I was using, as well as the social conventions of nota-taking, as much as they conformed to my supposed intentional agency.



Figure 8: Section from the array of paper-based field notes assembled in my office, showing diagrams visualisations and notes.

In addition to the word processing software, field notes were also taken on paper. This element of the field note method was primarily used when engaging with reading material or literature outside of the MOOCs themselves, although this distinction was not rigid. The paper based notes allowed me to record quick insights and ideas without having to access the word processing documents stored on the computer. However, I was interested in exploring how these notes could be considered, not as separate ‘offline’ contributions opposed to the ‘digital’ word processed documents, but as part of a multifaceted field note method. Firstly, these notes were arranged on a notice board, making them highly visible during other research activities (see fig 8). This assembly also allowed the incorporation of additional images and visualisations, creating a bricolage of various notes, reflections, diagrams and records of participation, which would become valuable for the ‘diffractive reading’ research design. Secondly, I also experimented with ways of linking these notes to other digital and non-digital resources. QR codes (see fig 8) were used to provide direct links from the notes to specific online content. This meant that, using a mobile device or tablet, one could link to and explore digital content alongside viewing the array of paper-based notes. Additionally, I explored the use of augmented reality software to programme such devices to display images ‘over’ of the array itself, using the camera and visual display functions (see fig 9). The example in figure 9 shows how this was used to associate a particular book with a diagram I had drawn to represent the concepts discussed within the text.



Figure 9: Screenshot from augmented reality software showing how digital images can be associated with specific hand-written notes, in this case book covers indicating associated texts.

Additionally, this technique allowed me to program a similar effect on the book covers themselves, where images of my paper-based notes could be displayed, or supplementary content such as a video of my research activity (see fig 10).

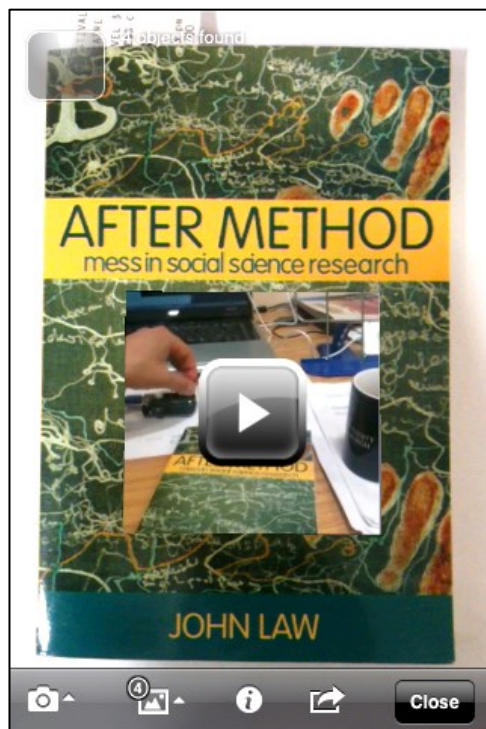


Figure 10: Screenshot from augmented reality software showing a video superimposed over a book cover.

In these ways, the field notes encompassed a broad range of recording activities with multiple objects, technologies and spaces, and manifested in complex ways between and

through ‘digital’ and ‘physical’ enactments. In this way, I suggest that my field note method reflected the concepts of complexity and hybridity that underpin this thesis. The notion of ‘gathering things together and experimenting’ (Edwards 2010, p9) was a key influence in this process. Edwards (2010) cites both Heidegger’s concept of the ‘Thing’ (2009) and Latour’s notion of ‘quasi-objects’ (1993) in proposing ‘gathering’ as a way of acknowledging hybridity and entanglement, and enacting non-representational knowledge. This data collection was thus approached with sensitivity towards the intermingling of human and non-human in the MOOC, and with a commitment to method as the performance and production of knowledge. However, the complexity of some of these systems, as well as my own time constraints meant that I could not develop these routines as much as I would have liked throughout the research. Nevertheless, as an experimental practice, these techniques helped me to thinking through some of the issues of ‘online’ and ‘offline’ boundaries prevalent in the area of study.

Discourse analysis

A method of discourse analysis was employed in this research as way of critically examining elements of the MOOC encountered in the various modes of participation. It should be stressed that this was not necessarily a distinct or separated process from the other methods described here, and this analysis would often alter the ways I engaged in taking field notes, for example. However, I suggest that a method of discourse and visual analysis is a useful way to understand some of the more formal writing that ensued from ‘participation’ in the research. Principally, this method involved the attempts to link broader discussions from articles, online debates and grey literature on MOOCs and online education in general, with that emerging in the modes of participation associated more closely with the courses themselves. Some clarification on the term ‘discourse’ is required here.

While Mills attests to the variance and fluidity of the term discourse (1997), I use it here in the sense derived from cultural and critical theory, whose primary influence is in the work of Foucault (1972, 1979, 1989). Foucault describes discourse in a number of ways, however it is the idea of ‘a regulated practice that accounts for a number of statements’ (1972, p80) that has particular resonance for this research. Discourse is thus interpreted as the ‘rules and structures which produce particular utterances and texts’ (Mills 1997, p7), and therefore a term ‘synonymous with the entire social system’ (Howarth 2000, p2). Similarly, Davies describes Foucault’s discourse as ‘the capillary structure of social cohesion and conformity’ (1997, p70). While these definitions allude to notions of power and control, I also suggest

that they also signal broader relations, contingencies and information flows that exceed, but also work through, individuals, of which language and cultural practices are just one part. Therefore, this method was adopted for two purposes: primarily to surface the regulatory systems that influence what is said about MOOCs and how they are conducted, which I thought to be an important aspect for critique; but also to consider what non-human dimensions might be involved in the production of such discourse. Thus, while the analytical method I used in this research drew from the work of Foucault (1972, 1979, 1989), and the critical approach of Fairclough (1995, 2009) to examine text and images, I also attempted to acknowledge non-discursive influences within which these communicative structures were situated. Indeed, Fairclough calls for the need to locate the micro analysis of text within a macro analysis of context, such that ‘textual analysis is best framed within ethnography’ (2009, p15). In this way, I suggest that my method of discourse analysis complemented the taking of field notes and the wider practice of engaging in ‘diffractive readings’.

The aim of this particular method was to examine the identified MOOCs as frameworks, symbolic systems and practices which communicate meaning about what it is to learn, and as a result think beyond what it means to be a subject generally. Given the extensive rhetoric of institutional disruption and individual emancipation surrounding MOOCs (for example Adams 2012, Lewin 2012, Marginson 2012), discourse and visual analysis techniques were used as a way of illuminating and expressing complications and problems with the dominant assumptions and narratives (Howarth 2000). Therefore this method allowed me to develop some of the ideas which surfaced from participation and in the field notes, making links between broad MOOC themes and specific course activities and content. This manifested in the form of editing sections and fragments from the field notes, but also additional, more formal writing. What emerged were primarily critiques of what I perceived to be leading, yet under-theorised assumptions about the MOOC phenomenon, identified in the surrounding literature and promotional material, and seemingly performed within the courses themselves. Core themes were identified from this method, and developed in more formal notes: technological instrumentalism; ‘openness’ as admittance to information; institutional elitism; the under-privileging of the teacher; and the production and maintenance of a certain kind of ‘learning subject’. In this way, the method of discourse analysis allowed me to organise some of the data captured in the field notes into more established categories. However, as suggested previously, this was not a linear process, and the themes specified here also influenced the subsequent ways I went about generating the field notes.

While these themes would prove crucial to the research and surface in the ensuing analysis chapters of this thesis, I wanted to push analysis beyond what might be considered merely social, and not only interrogate the underlying material forces through which such discourses emerged, but also to disrupt my own rational assumptions about what I was ‘discovering’ through such a method. For Foucault, analysing discourse was a way of attempting to decentre the rational humanist subject as the focus through which to examine historical processes (1972, 1989), and I interpreted this as not only a call to analyse non-human factors, but also to conduct research in a way that did not reassert the primacy of human reason. In other words, an additional process of ‘diffractive reading’ was required, which will be discussed below.

As Mills reminds us, discourse is not identifiable or analysable in itself; rather the methodological approach is to seek out the utterances, concepts and realities that it produces (1997). Thus the range of MOOC-associated content was considered to be the *effects*, not only of discourses that are always connected to other discourses (Mills 1997), but also of material and non-human influences. Therefore, a crucial part of the discourse analysis method was to consider the material influences which produced the themes identified above, yet which were rarely discussed in the literature. This materiality was initially interpreted as: technological, as in the infrastructures, codes and algorithms of the web and the Internet; spatial, as in the material configurations of educational institutions; and embodied, as in the substance of the human bodies involved in MOOC instruction and participation. Therefore, attempts were made in this method to examine, foreground, and associate these aspects with the themes identified above, as well as the more dominant MOOC discourses.

The digital spaces of the MOOC were an important factor in the enactment of this method, in that they trouble the purity of text. Fairclough describes a need to acknowledge the ways in which the web often references other mediating technologies; brings together different forms of discursive (inter)action, and ‘combines different semiotic modalities’ (2009, p77). I therefore suggest that this method required a broad scope in order to acknowledge the hybridity of the digital and the entanglement of textual, visual and material factors. I have therefore drawn upon established visual methods (Rose 2007) in order to undertake a comprehensive analysis of MOOC-related content. Of particular relevance to this approach has been the recognition of audience already encoded in the visual, a notion Rose (2007) attributes to the work of John Berger. This is precisely the broad sense of relational

production that I sought to expose in the MOOC, and contributed significantly to the analysis in chapter 4. However, I wanted visual analysis to importantly move beyond the identification of cultural meaning-making, for which I considered a relational materialist approach (Hultman and Tugachi 2013) that will be discussed further below.

In these ways, I suggest that this method went some way to engaging with a new materialist counter to the dominance of the cultural, sometimes assumed in more orthodox renditions of discourse analyses that focus exclusively on language, interpretation and cultural meaning. However, additional methods were required to explore this further. As Postma suggests, '[t]he critical task is not only to refine critical theories to diagnose and analyse, but mainly to create or recognise the material conditions that might be conducive to a differential enactment of reality' (2012, p155).

Experimental methods

What seems to be needed is a certain willingness to appear naive or foolish. (Bennett 2010, pxiii)

In addition to the primary methods identified above, I created a number of experimental systems designed to highlight the generation of research data through automated or sensor-driven processes. These systems were intended to foreground the ways in which non-human factors could be considered to shape and influence the research event, and functioned primarily as ways of creatively experimenting with the boundaries of methodological practice. There was a deliberate playfulness to these systems that was intended to incite different ways of thinking rather than demonstrate an instrumental approach to methods, in which the precision and authenticity of the process renders it invisible (Law 2004). Rather, the intention here was to make visible these experiments, such that both their results and their procedures were emphasised, and thus able to influence my critical approach. This follows from the suggestion that a 'sociomaterial conception does not see critique in the first place as a form of theorising but as something present within practices' (Postma 2012, p154). Further influenced by the idea of a methodological strategy that actively creates relations (Coleman and Ringrose 2013), these methods were, I suggest, both empirical and conceptual; allowing me to measure various factors and generate data, as well as provoking further ideas about the hybrid and sociomaterial events of the MOOC.

Using web-enabled sensors, these experimental methods were designed to generate data from what I considered to be three primary non-human factors in the research: the

environment, physical objects, and the human body, with a fourth being the technology implicit in all three. As shall be discussed below, the human body is included here because it fails to meet the criteria of humanism outlined in chapter 2. Four small-scale bespoke systems were developed: a GPS tracking arrangement designed to allow specific locations to send a tweet when they were being used for my research; a sensor to record and visualise office temperature; an RFID system designed to allow books to send tweets when they were being read; and a motion sensor programmed to allow gesture to control some basic MOOC navigation. More detail about these systems is provided in table 2. It is important to stress that these methods were not considered to provide straightforward access to non-human data, or to identify instances of non-human agency. Rather, they were designed to highlight the problematic assumptions in data collection itself: that data can straightforwardly represent the complexity of events; that it derives directly from either human endeavour or real world occurrences; and that the non-human or material itself can be isolated and captured. In this way, I suggest that these systems constituted a critical methodological approach by emphasising the distributed and entangled conditions of agency through which realities are produced in research. As Postma suggests, '[i]f we move away from a humanistic conception of agency, then the attention shifts towards the sociomaterial conditions that may provide opportunities for differential forms of agency' (Postma 2012, p144), thus signalling the potential for new and alternative ways of both perceiving and actively making the MOOC.

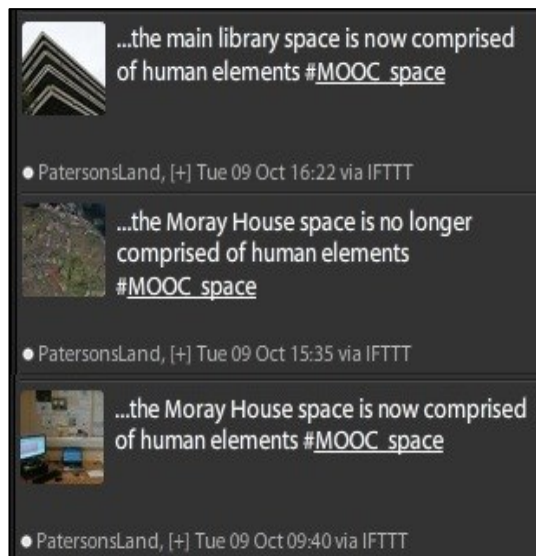


Figure 11: Example tweets from the GPS tracking experimental method, showing the different text and images programmed to appear when specific locations are involved in the research

The GPS tracking system made use of smart phone technology and ‘geofencing’ software to generate data whenever I entered a specific location. I used this data to automatically send a tweet whenever I arrived or departed from three locations: my office, the university library, and my home, thus signalling that these spaces were involved (or not) in the research process. As seen in figure 11, the messages were pre-programmed to suggest that it was the locations themselves which were independently commenting on being involved in the research. It would be difficult to suggest that the GPS system constituted a straightforward case of spatial agency, perhaps the most obvious point being that I composed the tweets. Rather, the point of this system is to highlight the entangled assemblage of spatial, human and technological agency that is brought into being through the research method.

The temperature sensor was created using a thermistor circuit, Arduino microcontroller, and the online service COSM (see fig 12). It was designed to record the temperature of my office and send this data to the web where it could be visualised in the form of a graph.

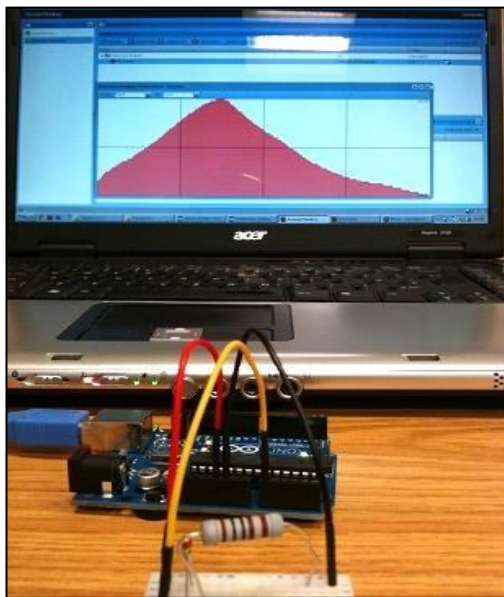


Figure 12: Temperature sensor using a thermistor circuit, Arduino microcontroller, and online data visualizer

This non-human environmental data was intended to be incorporated into the general data gathering of the research. As seen in figure 13, I occasionally pasted a screenshot of the temperature graph into the field notes, thus attempting to incorporate and juxtapose this environmental data with the records of MOOC participation. However, I found this method somewhat inconclusive, and as shall be discussed in the section on problems and failures, it is something I intend to pursue in future research.

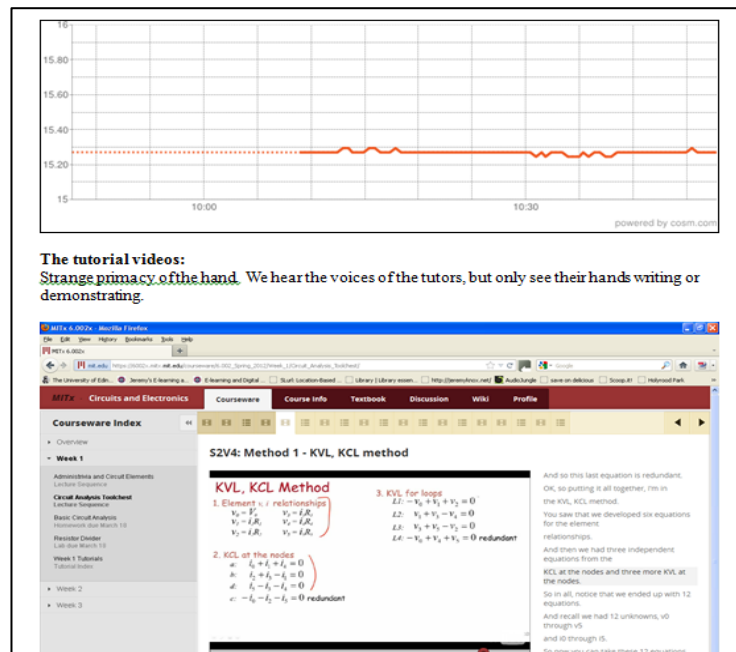


Figure 13: Section from the 'Circuits and Electronics' field notes, showing the inclusion of a graph from the temperature sensor

The third experimental method was a system designed to allow books to send a tweet when they were being read (Knox forthcoming). This arrangement used RFID tags attached to the back cover of specific books (see fig 14), a corresponding sensor attached to a book stand (see fig 15), and a bespoke programme to send the tweet. Thus, when the books were placed on the book stand to be read, the programme sent a tweet containing a random sentence from a selection of the book's content. Elsewhere I have written more extensively about the quandaries of non-human agency and data in this system (see Knox forthcoming), and following the discussions above I suggest that its value in this research is to provoke and expose a complex agency that is irreducible to exclusively human or non-human intention. As a method, I suggest that it *represents* the activity of both human and object in the form of data, as well as *performs* the research an assemblage of multiple contingencies and relations.

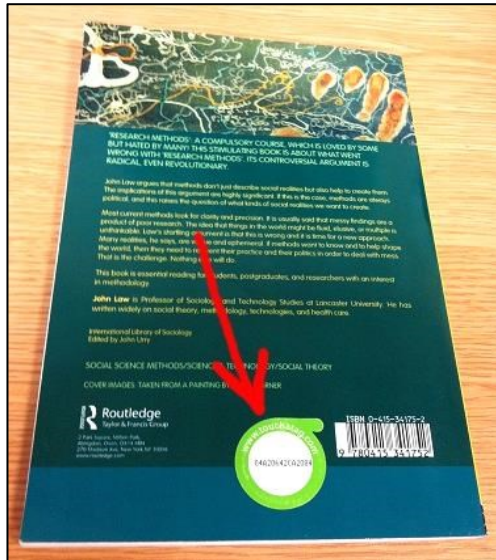


Figure 14: Book with RFID tag



Figure 15: Book stand with RFID sensor

The final experimental method involved a motion sensor which was programmed to use bodily gesture to control the navigation of a MOOC (see fig16).



Figure 16: Motion sensor used in conjunction with the Coursera MOOC platform, programmed to allow body gesture to control navigation

The bespoke programme was developed to detect two specific postures, involving the particular placement of limbs, and to open a random video or content page from a MOOC in response. As such, this system was intended to explore the agency of the human body, as an

‘unconscious’ or ‘non-cognitive’ factor in the method of research participation. While not strictly ‘non-human’, the idea here was that the body is often not included in the idea of the rational Cartesian subject, making cogent decisions about their research or reflecting on their practice. In this sense, the body seems to fall short of the humanist criteria discussion in chapter 2. As MacLure suggests, methods immunise sense or bodily data to preserve a pure and generalisable meaning (2013). This method therefore adopted a playful approach in granting agency to the body, which was able to counter the reasoned navigation of the participant and send them to random areas of the MOOC. As such, I suggest that it constitutes a working-with-data that is non-representational; bodily gesture is not documented in any way, or construed to represent meaning about the human participant or the MOOC, rather it performs course navigation, and thus enacts new human and non-human assemblages in the research.

As suggested by the quote beginning this section, some of these experimental methods might seem somewhat ingenuous or simply inaccurate as explorations of non-human agency. However, as Bennett (2010) has argued, sometimes the tendency to anthropomorphise pushes the researcher into different ways of thinking about the non-human. Therefore, while these experimental systems were not used explicitly in the final writing of this thesis, I suggest that they did play a significant role by shifting my thinking and practice around research methods; influencing the kind of data I sought to find elsewhere, and the themes I drifted towards in other research activities.

Research Design: diffractive reading

The field notes, discourse analysis and sensor experiments manifested as three overlapping and intra-acting methods, such that their separate descriptions here are considered somewhat problematic. For example, to suggest that participant observation took place devoid of any analytic activity would be to distort the way this research unfolded. Nevertheless, to differentiate between these phases may be a useful way to portray how I went about the analysis of MOOCs in the research. The first was concerned more with narrow and specific modes of MOOC participation, while the second sought to make connections with the broader MOOC literature and develop themes, and the third pursued experimentation with non-human data. However, St. Pierre attests to the legitimacy of non-linear engagements in research; collecting data and then having to return to identify the method thought to have been used (1997). Furthermore, as Law suggests, social science methods too often manifest as procedures to be chosen and applied automatically with an efficiency and exactitude that

is abstracted, autonomous or mechanical; simply proving 'short-circuits that link us in the best possible way with reality' (2004, p10). In contrast, my strategy was purposely approached to foreground research processes and encourage exploration and risk, rather than straightforward execution. I therefore highlight the difficulty in describing actual research practice in the terms conventionally attributed to social science methods, and propose an overarching research design that reflects the non-linear and 'messy' (Law 2004) ways in which I arranged and developed these methods.

As discussed previously, the discourse analysis phase resulted in a number of core themes; however I was cautious about the extent to which the identification of topics might constitute a re-centring of the subject, in the form of myself as the all-knowing researcher. Hultman and Tugachi attest to the habits through which researchers standardise their relationships to data, for which they propose a 'diffractive methodological strategy' (2013, p535) to disrupt a rational, interpretive response. Furthermore, as MacLure suggests, the downside of categorisation and coding is 'the risk of closure and stasis' (2013, p662), and I therefore desired a research design which might open up new possibilities and understandings. I suggest that 'diffractive reading' was thus a way of organising, but also *disorganising* my data in the (re)form of an overarching research design.

Diffraction appears as a key theme in the work of Haraway (1997) and Barad (2007); defining a process of interference, through which forces or movements disrupt each other, yet remain within the resulting transformation. In this sense, one thing can be 'read through' another; allowing things to be unsettled and altered by the properties of each other, so as to surface continuous processes of transformation (Hultman and Tugachi 2013). It is the intra-active force that I want to foreground here, the co-constitutive alterations that I suggest to provide a way of engaging with research method in this thesis. In other words, rather than the human researcher being preserved as the core of intentional and rational analysis, a diffractive reading necessitates that both human being and data intra-act and change in the research process. As Hultman and Tugachi suggest, this requires '*becoming with the data*' (2013, p534 emphasis original), a relationship that denies the hierarchy and separation of researcher reflexivity, and foregrounds immanent relations of human beings *in* the world of research. As such, 'a diffractive "seeing" or "reading" the data activates you as being part of and activated by the waves of relational intra-actions between different bodies and concepts (meanings) in an event with the data' (Hultman and Tugachi 2013, p537). This therefore suggests, not only a move away from 'capturing' data as a representation of that researched,

towards a performance with data as a research event, but also a significant challenge to rational interpretation, and thus my own subjectivity. It is this idea that I attempted to put to work in the 'diffractive reading' method.

I therefore understood an approach of diffractive reading to constitute the bringing together of my research data, in the form of field notes, discourses analysis, experimental methods, and also the theory described in chapter 1, into diffractive and contaminating relations. This involved, firstly, combining and juxtaposing the outcomes of the methods described above, with theoretical concepts as well as each other, and secondly, the attempt to allow disruption and intra-action between data, and between data and myself, to occur. As described previously, this initially involved bringing data together: the notes and comments from field notes and noticeboard arrays with the themes from the discourse analysis with the data and procedures of the sensor experiments.

The intention here was to allow these combinations to happen in an intra-active fashion, so that the data was disfigured, drawn out of its conventional form by the act of diffractive engagement, while simultaneously the research encounter was disturbed, and rendered unrecognisable to itself. Not only would this method therefore trouble and render strange that researched, it would also interrupt the analytic, and rational, idea of method itself. Bringing together data would not only alter the meaning I might interpret through subsequent analysis, but might also radically alter the way I go about the meaning-making process. Such an approach might therefore permit 'patterns of configurations that open up to unexpected readings of and listenings to materials' (Lather 2013, p639). In these ways, I suggest that the posthumanism and new materialism discussed in chapter 2 was, to some extent, performed through and with my methods, rather than merely being abstract 'theory'. In other words, it was an attempt to engage in a non-rational, non-autonomous, non-humanistic, social science research method, reflecting the suggestions of a post-qualitative methodology (Lather 2013, St. Pierre 2013, MacLure 2013).

The 'diffractive reading' involved two principal stages: paying attention to events or occurrences that seemed uncategorisable, and returning to specific data multiple times. The first involved being attentive to data that seemed to resist analysis, common sense understanding, or that defied categorisation (MacLure 2013), especially that derived from the discourse analysis phase. Such events turn the 'rage for meaning back on itself in a kind of vibrating immobility' (MacLure 2013, p663), and seemed to indicate some kind of value

from the way that they repelled a rational approach. St. Pierre similarly attests to the value of 'data that were uncodable, excessive, out-of-control, out-of-category' (1997, p179), and it is such moments that I attempted to become sensitised to. MacLure describes occasions when data or an event makes one feel 'kind of peculiar...as if we have chosen something that had chosen us' (2013, p661). In this way, I suggest that data affects the researcher, disrupts their rational, subjective response and seems to allude to alternative, pre-subjective, ways of engaging with the research.

Secondly, and often as a response to events that resisted straightforward analysis, I employed a strategy of repetition; returning to specific data, yet performing different relations. For example, I would return to a particular section of my notes and attempt to interpret or analyse the content in a different way to my original annotations. Braidotti attests to the value of returning to a concept, phenomenon or perception from multiple angles in a creative form of repetition, or the 'internal return of difference, not of sameness' (2011, p225). I suggest that this method can therefore be viewed as a practice of making a difference, holding the potential to enact 'what might be' (Coleman and Ringrose 2013, p7) by making new relations that defy rational analysis. Thus, '[r]evisiting the same idea or project or location from different angles is therefore not merely a quantitative multiplication of options, but rather a qualitative leap of perspective' (Braidotti 2011, p225). The forming of such affirmative differences are the process of making relations *with* (Coleman and Ringrose 2013), rather than capturing or divorcing knowledge from the scene of research. As Postma notes '[t]he critical relevance of the notion of diffraction can be found in the way it points to the implications of different enactments of reality on each other' (2012, p146). Creative repetition through diffractive reading is therefore, I suggest, a critical process of expansion and opening.

It was from these attempts at a diffractive reading that the principle themes and analytic sensitivities of the subsequent chapters were developed.

Problems and failures

The first MOOC encountered, *Introduction to Computer Science*, was approached with the intention of participating, as much as possible, as a student. I took part as the course schedule intended, viewing weekly lectures and completing the assigned activities, as well as producing concurrent field notes as described above. However, attempting to engage in a similar fashion with *Modern and Contemporary American Poetry* and *Circuits and*

Electronics proved to be much more challenging, due to unfamiliar course content and a significant amount of material to engage with. As a result, my participation began to fall behind, and I was often engaging with material and completing tasks behind schedule. While I was able to complete *Introduction to Computer Science*, I was unable to meet the required deadlines in the other two MOOCs of phase one and failed to engage with all the required assessment tasks. While this was a departure from my intended research design, it did present me with alternative and valuable experiences of MOOC participation. As it turned out, disengagement and low completion rates became a prominent point of discussion related to MOOCs, and the experience of being overwhelmed with content and unable to complete course requirements reflected the majority of participants' engagement (Jordan 2014). This will be explored further in chapter 5.

Furthermore, I suggest that the thrust of the research was not to gain an authentic experience of being a student, and the level of participation was adequate for the purposes of my research. As discussed previously, I did not intend to view participation by the terms defined by the MOOCs themselves, but rather in a broader sense of being situated within wider contexts. Indeed, falling behind with the requirements of these MOOCs prompted me to engage with the courses with less formality, and a diminishing concern for the predetermined modes of participation meant that I was able to engage with the course in a non-linear manner, as well as being able to dwell on specific points of interest outside of the requirements of assessment. I suggest therefore that this shift in focus was productive in addressing the aims of the research.

The pattern of my engagement was largely due to designing and developing the *E-Learning and Digital Cultures* MOOC, which I was subsequently involved in teaching. Therefore, while this development played a role in reducing my capacity to engage fully as a student in other courses, it also afforded the exceptionally valuable experience of being a MOOC teacher, a role that places me in a unique position with regards to emerging research. However, once again I acknowledge that this experience will have changed my views significantly with regards to the MOOC, and reduced my ability to comment from the position of a more 'typical' participant. This might be understood as a move from the 'outside' of student participation, to the 'inside' of the role of the instructor, gaining access, not only to administrative areas of the MOOC platform, but also to Coursera staff and a wider community of individuals from partner institutions. Furthermore, the activities of developing MOOC content and undertaking teaching responsibilities shifted my perceptions

considerably, situating my activities firmly within the institution. I therefore acknowledge that the subsequent critiques of the MOOC, particularly in chapter 4 and 5, are undertaken from a complicit and privileged position; as a MOOC teacher employed at an elite institution. Thus, this involvement may have contributed to maintaining and legitimising the MOOC project at the very same time as I critique it as a researcher. While not necessarily a failure of the research, this complicity signals the tensions at play.

Additionally significant in terms of problems and failures were the experimental methods involving the use of sensors. I found that I did not have the time or the technical skills to create the desired complexity in these systems, and while very useful in terms of thinking about my research, the actual data they generated has not been used in the subsequent analysis of the thesis. My original intention was to integrate these systems in more elaborate ways, and to generate visualisations of the data. For example, the inclusion of the temperature graph in my field notes (see fig 13) was just an image, and didn't allow the actual data to interact or affect other elements in my methods. I would ideally have liked to have developed this system so that the temperature data altered specific features of the field notes, or perhaps some of the other sensor systems, thus demonstrating more nuanced ideas of non-human agency, hybridity and intra-action. This required technical skills that were not available to me at the time, but which I intend to pursue in subsequent projects. Such an approach would also have allowed these systems to produce more visualisations that could have contributed a critical stance on the field of learning analytics. This is an area which may be prominent in the future, and it is an emerging field that I will engage with in future research, as proposed in chapter 8.

Table 2: Summary of the range of methods employed in this thesis, specifying data collection and generation, the MOOCs involved and the timing of the methods

Method	Description	Data collection / generation	MOOC	Timings
Field Notes	Regular writing and capture of visuals produced in response to MOOC participation.	Word-processed notes describing participation, and relevant screen-captures of MOOC activity, such as forum discussions or frames from video lectures. Paper-based notes, diagrams and comments from wider reading.	Change11 CS101 6.002x ModPo ModPost EDCMOOC	Sept 2011 – Dec 2013
Discourse analysis	Analysis of academic publications and journalistic articles, as well as specific activity and resources within MOOC courses.	This analysis stage will draw from wider MOOC literature and the field notes, to synthesise and produce a number of core themes.	Change11 CS101 6.002x ModPo ModPost EDCMOOC	Sept 2011 – Dec 2013
GPS tracking	Recording the location of research activities	Tweets to mark when I arrive or leave study locations Additional KML map data.	ModPo ModPost	Sept 2012 + June 2013
Temperature	Recording the temperature of location during ethnography	Sensor recording of office temperature during specific instances of participant observation. Software generated graph of temperature.	CS101 ModPo	April 2012 + Sept 2012
Tweeting book	RFID system that sends a tweet when a particular book is read	Archived twitter stream of tweets containing predefined text from the selected books	EDCMOOC	Jan 2013
Body movement and gesture	Specific gestures affect the sequence of videos / pages / resources in a MOOC.	Browser history of movement through a particular MOOC session	ModPo	Nov 2012

Methodology: navigating research aporias

Drawing from the aporias, or ‘the stuck places of social research across paradigms’, identified by Lather (2006, p48), the following discussion will traverse the intra-related issues of: non-representationalism, subjectivity and objectivity; research as writing; interpretation; validity; ethics; and power. While these issues are considered problematic, and the following sections will seek to challenge the assumptions they often imply, it seems necessary to start somewhere. As Spivak suggests, we must begin with a term, if only to take flight from their orthodox meanings, in others words, to put such signifiers ‘*sous rature*’ (1997, xvii).

Non-representationalism

Central to the approach I have outlined in the previous chapter is the fabrication of a divide between theory and practice. The representational logic of dualist philosophy separates theory as a cognitive activity that is abstracted from, and transcendent of, an external and concrete world of practice. This ordering feeds into research approaches which consider methodology to not only rationalise practical research procedures according to a predefined theoretical perspective, but also to be required for the production of knowledge *about* the situation under study. Crotty exemplifies a hierarchical and stratified view of research where ‘epistemology’, ‘theoretical perspective’, ‘methodology’, and ‘methods’ remain distinct and contained layers which inform the subsequent level in a set order (1998). Thus, while his schema acknowledges that any methodological approach has already assumed a theoretical stance (Crotty 1998), thereby blurring theory and practice distinctions on the one hand, the very notion that social events can be *represented* through the application of methods tend to reassert an arrangement in which ‘knowledge’ is separated from ‘world’. In other words, objectivism, subjectivism and the supposed middle ground of social constructivism (Crotty 1998) all maintain the idea that the outcome of research, that is, knowledge, is something abstracted from a situation or event through the research process.

In contrast, non-representationalism derives from a non-dualistic concern for onto-epistemology (Barad 2007), and considers knowledge to be immanent; within the event rather than being *re-presented* in the minds of human beings undertaking research. Thus, the event of enacting this research is suggested to constitute knowledge itself; an immanent performance of knowledge through the research process, a point I will also address in the section on ‘research as writing’ below. However, it must be stressed here that I approach

non-representationalism with caution. I do not suggested such an approach to counter or undermine more established arrangements, nor is it positioned as superior; rather it is offered as merely an alternative and exploratory research strategy that may reveal different insights about education, and the emerging domain of the MOOC. The concepts of immanence, intra-action and difference described in the previous chapter are non-dualistic approaches which also, I suggest, trouble the straightforward distinction between theoretical perspectives and the practical undertaking of research. Accordingly, I have attempted to approach the research conveyed in this thesis as an undertaking situated within, and part of, that being studied. Furthermore, I have tried to employ methods that do not remain distinct or fixed, but are altered by the research situation, which is itself also transformed by use of methods. As such, the event of research was considered to be a unique occasion, although this does not disregard processes of repetition, as discussed previously in relation to the 'diffractive readings'. Additionally, while the research undertaken in this thesis is suggested to constitute a unique and unrepeatable event, it also acknowledges the processes of recurrence that have produced it, no less in the ways I have drawn from the methodological work of others.

Furthermore, I acknowledge that such an approach cannot be thought of as emancipatory, or an escape from representation, which pervaded all aspects of this research and is established unquestionably and powerfully in the form of this thesis. Moreover, such representation is certainly valuable, and not necessarily positioned as a 'lesser' kind of knowledge in this research. In this way the idea of a 'post-representational' approach (MacLure 2013) may be useful. Following from the way I have described the 'post' of posthumanism in the previous chapter, it might then be considered a way of holding representationalism to account. I therefore suggest that I was only able to approximate non-representation in this thesis; however this is a methodological sensitivity that I will continue to pursue in future research.

Subjectivity and Objectivity

Lather highlights how poststructuralism is often supposed to negate the idea of objectivity, an assumption that often leads to the over-privileging of subjective accounts, which in turn neglect to recognise 'the inadequacy of thought to its object' (Lather 2006, p48). To dwell in subjectivity can assume the authority and ascendance of human thought over that which is studied, restricting the research object to the capacities and limits of human understanding. This reflects the notions of purification discussed in chapter 2. Dissatisfaction with the assumptions of mastery within strong objectivity, therefore, should not necessarily lead one

to an equally assumptive and anthropocentric position where subjective understanding is deemed superior. As Eisner puts it, '[w]e need not embrace a solipsistic subjectivism by recognising that ontological objectivity is impossible' (Eisner 1992, p13). In other words, the problems persist if the researcher remains within the dualism. As Lather suggests, '[t]he key is that all [research methods] locate the researcher within the context of the research in a way that disrupts "subjective/objective" binaries and accounts for the conditions of its own production' (2006, p51). Eisner offers the idea that subject | object divides might be approached in terms of an exchange, suggesting '[i]t is in the transaction between objective conditions and personal frames of reference that we make sense' (1992, p13). These 'personal frames of reference' are further qualified as 'schemata' which structure our perception, producing potentially different, and often oppositional, understandings and experiences of reality (Eisner 1992, p12). Similarly, Law refers to 'hinterlands', or complex assemblages and discourses that precede, but are also constitutive of, the researcher, and are already in states of production (2004). However, I suggest that these notions of exchange and composition must be pushed to towards the relational emphasis of intra-action, as discussed in chapter 2. The subjective and objective are therefore navigated from a position of contagion, infection and impurity (Haraway 2008, Lewis and Kahn 2010); notions which are foregrounded here for their emphasis on action, as well as for the ways they remain immanent, but not oppositional to, the dualisms they allow us to transverse.

Firstly, this formulates the research as a dynamic and continual process of relation. As Coleman and Ringrose suggest, '[t]he methodological task is thus to enter the middle, the between; to relate' (2013, p9). Given the significant involvement of digital technology in this study, the notion of the cyborg (Haraway 2000) serves as a useful concept. This shifting, material-semiotic figure operates at the nexus of technology and human, infecting the pure states of anthropocentric research practices, and reconstructing the boundaries of the subject | object divide. This position of hybridity, however, also acknowledges the potency of such underlying dualisms, particularly the ways they are continually produced and maintained through educational practices. I therefore acknowledge the difficulty of simply erasing the subjective and the objective, and do not claim to do so in this research. As discussed in chapter 2, posthumanism is not necessarily immune to the resurfacing of underlying dualisms, as sometimes implied in notions of the 'ontological turn' or the emphasis on analytical assemblages. Therefore, the hybrid stance of this research is not offered as a potential state of arrival or emancipation, at which the problems of meaning and the locations of knowledge have been resolved. It does not negate the power, or the

materiality of subjective and objective orderings. Rather hybridity recognises that the subject and the object are constituted through interrelated material processes and human practices, as the effects of particular networks of relations (Law 2004). In this sense, the dualism is very real; it is made actual through methodological practices. Furthermore, the subjective and objective are not necessarily worthless; as Pedersen contests, it is the subject that, despite being constructed, has expressed the concept of posthumanism itself (2011). Therefore, a methodology of hybridity is proposed, not as a solution to the subject | object divide, but as a way to affirmatively and critically infect it, and thus to attempt to move towards a posthumanism beyond the subjective. This means, paraphrasing Haraway (2011), acknowledging my own position as a researcher, alongside the focus of study, as already being knotted, before they tie each other in knots.

Research as writing

What method could possibly be appropriate for the task of speaking a word for vibrant matter? How to describe without thereby erasing the independence of things? (Bennett 2010, pxiii)

The notion of contamination also impacts on the writing of this thesis. Eisner highlights how traditional forms of research writing, particularly within paradigms that privilege ontological objectivity, have adopted a formalised style in order to expunge any trace of the researcher, lest it be accused of subjective bias (1992). Haraway has highlighted the power of such a third person; speaking from nowhere and evading representation (1988). However, to swing the pendulum back towards subjectivity, and write in a way that unproblematically situates me as the originator of this research, would appear to be similarly incongruous with the theoretical perspectives articulated here. Lather calls for a similar 'dedramatized story' (2013, p640) as a move away from the authenticity of the subjective account.

However, the decentring of language discussed in relation to posthumanism and new materialism is not posited as simple or unproblematic in the practice of producing this thesis. In considering the problems of writing *about* materiality, Fenwick and Landri highlight how 'highly reflexive researchers struggle with the processes through which they translate material enactments into symbolic representations' (2012, p5). I suggest, therefore, that language is grounded in an ontological commitment to the subject; an orientation which has left human beings ill-equipped to describe the non-human in terms other than the anthropomorphic. Language is not just reductive, but also a process of altering; as Eisner points out 'any symbol system both reveals and conceals' (Eisner 1992, p12). Thus the

primacy of language and dominance of linguistic representation in academic practice may sit uneasily with this attempt to research the non-human. Fenwick and Landri ask: ‘How are materials being anthropomorphised through a researcher’s intervention? Whose meanings constitute what is claimed to be materiality?’ (2012, p5). The discourse of academic research also has influence here, shaping outcomes, the kinds of knowledge that might be produced and the subjectivities entwined in these processes.

My position as the writer of this research is not one that can straightforwardly claim to write autonomously or personally – perhaps a challenge to an orthodox educational arrangement which would see me credited for authorship. Therefore, while I permit the notion that ‘[t]he research enterprise cannot be separated from the research, and it is imperative to put the personal on the agenda’ (Kamler and Thomson 2006), I also challenge the purity and stability of the personal. In acknowledging all the ‘others’ of her research from whom she collected responses; participants, colleagues, informants, friends, authors, journal editors, to name but a few, St. Pierre describes an outside that ‘move[s] me out of the self-evidence of my work and into its absences’ (1997, p185). In a similar way, I want to acknowledge how the outside of my own research decentres me as the exclusive author. As Gourlay suggests:

The “writer” of the text arguably cannot be identified as solely the embodied human subject. Instead, the dissertation is produced by a hybrid biological-informational entity which is looped into wider networks of online information throughout the research and writing process. (2012, p98)

Just as “I” the researcher have entered into co-constitutive relations with that researched, “I” the writer become contaminated with the material and semiotic relations of each emerging word. “We” might therefore say that this thesis constitutes the sociomaterial mapping of an infection; a contamination that spoils the purity of humanist (subjective | objective) research.

With reference to traditional practices in writing up research, Richardson suggests ‘adherence to the model requires writers to silence their own voices and to view themselves as contaminants’ (1992, p347). I therefore suggest that, rather than being the sterile representation of the researched event, this writing becomes its own infectious growth; (re)invading the situated act of research and (re)coding the enacted knowledge in the process.

Interpretation

Of significant importance in the hybrid, differential, and potentially affirmative process I have described, are the entanglements of all concerned. Expressed differently, when it comes to interpretation, none can be trusted to be what they apparently are.

Commitments to interpretation derive from assumptions about meaning embedded in the dualist thinking of ontology | epistemology. I suggest that meaning is thus viewed as either transcendent from the form of that studied (remaining intact despite reconfiguration or manipulation of data), or perceived to derive from form itself. The latter points to meaning as multiplicity; a point well illustrated by Mol and Law in relation to the ways that medical knowledge is constructed and performed (2004). However, such pluralism, in which there is ‘no single, legitimate way to make sense of the world’ (Eisner 1992, p14), must not be reduced to relativism. Eisner contextualises knowledge as being relative to ‘a framework, to a form of representation, to a cultural code, and to a personal biography’ (1992, p14). However, this must be further situated within a sociomaterial ordering, where interpretation is never a purely social phenomenon. The point here is that Eisner’s personal biography is not only relative to wider social constructs, it is also already a hybrid, sociomaterial arrangement. As Law puts it ‘believing something is never enough to make it true’ (Law 2004, p8).

Furthermore, interpretation matters; it is a site of influence and inequality, a point that will be discussed further in the section on power. For Lather, the interpretation of data becomes a troubling and persistent negotiation between respecting the possible non-subjective qualities of data, and the need for valuable and scholarly interpretation, where the task is to *honour* data, rather than becoming embroiled in the futile practices of extracting essential meaning (Lather 2006 citing St. Pierre 1997). This means ‘doing justice to what it has to tell us about living in this complicated world’ (Lather 2006, p50). Injustice to the research process, I therefore contend, would be to read data at ‘face value’; to consider only its surface qualities and immediately recognisable features. Lack of trust in research data is not only a crucial way to responsibly engage in a non-anthropocentric interpretation, it is also a matter of ethical relations with the worlds created by research.

Moreover, rather than being passive and inert; only activated by an intentional and competent human researcher, data is a ‘constitutive force’ in producing research (Hultman and Tugachi 2010, p534). In other words the researcher does not necessarily interpret data;

rather data infects and infests the researcher. The act of research is therefore to be overrun. However, alongside such a de-centring of the human subject, this research also acknowledges the potency of its habits and customs. Interpretation operates in the deeply cultivated tracks of humanism; reconfiguring and reformatting data into the decipherable and the rational. Interpretation is thus largely predetermined by ‘over-coded machines’ (Deleuze and Guatari 1988), which ‘structure and regulate our relationship to the data and our seeing and thus determine what it is we see’ (Hultman and Tugachi 2010, p535). This is the interpretation of reflexivity I adopt in this research: not a subjective self-examination of the subject - an infinitely regressive process of self-division that distances the researcher from the researched (Barad 2007) - but rather a consideration of the over-coded machines that have already structured my interpretation according to the dominant routines of the humanist subject.

While not suggesting this is a simple or straightforwardly achievable approach, as outlined above, I have attempted to embrace a diffractive methodology (Barad 2007, Hultman and Tugachi 2010); to interpret otherwise, to consider that beyond the merely present, and to mistrust the act of interpretation itself. This involves the researcher becoming with the data, which in turn becomes with the researcher. Operating at the interface, interpretation thus becomes, not a question of fidelity, but rather a persistent, diffractive process of making the strange familiar, and the familiar, strange. This corresponds with the ethical vitalism of Braidotti: ‘an act of unfolding of the self onto the world and the enfolding within of the world’ (2011, p95).

Validity

Validity is an issue that requires theoretical navigation (Lather 2006). Following from the considerations of non-representation, I suggest that validity of this research could be measured, not by the knowledge it is thought to abstract from the encounter with the MOOC, but by the knowledge it performs in the immanent processes of the research. A Deleuzian informed methodology is one of specificity and relevance to particular situations, rather than a set of generalizable rules (Coleman and Ringrose 2013). In this sense, it reflects Law’s call for moving beyond methods that seek the repeatable (2004). Relational methods always manifest differently and *make* a difference (Coleman and Ringrose 2013). Such a methodological approach can be perceived as ‘[m]apping difference, opening up spaces of and for difference’ (Coleman and Ringrose 2013, p7). Therefore, validity might be measured, not by the generalizability of the ensuing knowledge, but in terms of the quality of

difference produced, or as St. Pierre suggests ‘to produce different knowledge, and to produce knowledge differently’ (1997, p175).

Nevertheless, I acknowledge the exploratory and experimental utilisation of this notion in this research, and do not claim to have necessarily exacted such difference. While attempting to be innovative with method, I have reproduced many orthodox approaches, at times as the direct result of attempting to challenge or overcome them. However, I suggest that such an interrogation and questioning of the research practice constitutes a valid and worthwhile contribution to social science methodology.

Ethics

Modernist suppositions about agency and causation have framed the domain of ethics (Coole and Frost 2010). Thus, the emergence of critical posthumanism ‘is really intended to re-think what sort of politics and ethics can exist once humanism has been challenged as a rights-framework’ (Giraud and Grove 2013), and I suggest that this has important implications for research methodology. Coleman and Ringrose foreground an immanent condition of ethics, contrasted with the a-priori and abstract model of morality (2013). The difference lies in the propensity for change through relation, rendering ethics adaptable while morals remain locked to the transcendent and archetypal values of humanism. For Braidotti such posthuman ethics require ‘an enlarged sense of inter-connection between self and others, including the non-human’ to avoid the hindrance of self-interest and the homogenising universalism of humanist morals (2013, p190). This reflects Hultman and Tugachi’s call for acknowledging the influence of the material as an ethical move in research (2010). This offers a methodological sensibility that emphasises the intensity of connection: ‘to actualise the cognitive, affective, and sensorial means to cultivate higher degrees of empowerment and affirmation of one’s interconnections to others in their complexity’ (Braidotti 2011, p95). In this way, ethics ‘explodes anew in every circumstance, [and] demands a specific reinscription’ (St. Pierre 1997, p176). Accordingly, I suggest the *accountability* defined by Barad:

“objectivity” is not preexistence (in the ontological sense) or the preexistent made manifest to the cognitive mind (in the epistemological sense). Objectivity is a matter of accountability for what materialises, for what comes to be. It matters which cuts are enacted: different cuts enact different materialised becomings. (2007, p361)

As St. Pierre contends '*thinking and living are simultaneities*, and we have to think possible worlds in which we might live' (2013, p655), and it is with such a non-dualistic sensibility that I attempt to approach the issue of ethics.

Nevertheless, the research of MOOCs has surfaced important issues of privacy, for which the above orientation may not necessarily provide a solution: Although MOOCs are often promoted as 'open education', the question of ownership of participant content (for example, individual forum postings) within such courses becomes a less clearly defined issue. Furthermore, content is not viewable unless enrolled in a MOOC course. While this process consists simply of supplying an email address and creating a password, it also requires access to the Internet and competent knowledge of technology, highlighting questions about what constitutes 'public' access and openness. This research has used data associated with other MOOC participants, including discussion forum postings, as well as content from wider public websites and services. MOOC courses are acknowledged as open to the public, and any participants are made aware of this when they join. Permission from the course facilitators of the *Modern and Contemporary American Poetry* and *Introduction to Computer Science* was granted, and I announced my presence as a researcher in my platform profile during this participation. The only information utilised in this research is that displayed publicly by course participants. No individuals were approached directly. However, steps have been taken to ensure that participants' real names were not used, and care has been taken to treat data sensitively and responsibly in writing the field notes. It is not assumed that the public accessibility of data removes the need for anonymity in research writing, or for sensitivity toward those generating the data. The likelihood of physical and emotional risks to other MOOC participants is therefore minimal.

Publically accessible web content is difficult to define according to established notions of privacy (Kozinets 2010), and the ethics of online ethnographic research have had to contend with the problematic issues of presence and absence online (Hine 2000, 2005). The web has been predominantly perceived in two different ways, as *place* and *text* and these interpretations imply significantly different notions of confidentiality (Kozinets 2010, Bassett and O'Riordan 2005). This has a particular resonance in relation to the MOOC, which might be perceived as both a centralised place for learning, and a platform which contains course content and user interactions within it. The public image maintains the idea of a place in terms of an open access site for learning, yet admittance requires a login, and the user agreement relinquishes ownership of any textual input to the MOOC platform

provider. Where the web is viewed in terms of place, open access web content might be considered to mirror public space, in which activities and conversations could be acknowledged as legitimately observable for research (Kozinets 2010, boyd 2010). However, where online content is viewed in terms of text the tendency shifts towards notions of ownership (Kozinets 2010). Bassett and O'Riordan suggest a reconsideration of the dominant spatial metaphors, calling instead for an ethically sensitive and adaptive view of the Internet as 'a cultural production of texts' (2002, p233). From this standpoint, metaphors of 'place' in relation to the web reinforce the idea that Internet research is engaging purely with human subjects (Bassett and O'Riordan 2002).

Navigating an ethical position commensurate with the theories of posthumanism articulated here and in chapter 2 is challenging, given the contestation of humanist subjectivity and its notions of intention, identity and autonomy. From this perspective, ownership of online content, such as text, might be challenged because the very distinction and independence of the subject is questioned, and replaced with notions of distributed, sociomaterial assemblages of humans and non-humans. Nevertheless, I am approaching this research, not with broad claims of a posthuman ethics, but rather with a responsibility and honesty that I feel is appropriate to the environments in question. In terms of privacy, this follows from Nissenbaum's notion of contextual integrity (2004); a concept adopted by the Association of Internet Researchers (AoIR) as an ethical principle appropriate to Internet research (Markham and Buchanan 2012). Following these guidelines, my ethical stance is therefore one that is negotiated within the context of the research, rather than prescribed by rigid codes of practice (Markham and Buchanan 2012).

Power

As Haraway reminds us 'all drawings of inside-outside boundaries are power moves, not moves towards truth' (1988, p576). In this sense, this research is considered to have explored power relationships much more so than it has sought authoritative conclusions about the MOOC. While my methodology may construct and attempt to justify particular categorisations, I also acknowledge the power structures that I inevitably preserve and enact, no less my position as a researcher and MOOC teacher within an elite university. Following from the recognition that knowledge and power are constitutive of each other (Foucault 1972, 1979), the production of data in this research necessarily situates the researcher in a position of authority. While I have suggested that I may be merely part of a methods assemblage (Law 2004), I also play an important and powerful role in such a configuration

(Coleman and Ringrose 2013). As this research calls for a methodological sensibility, rather than a definitive plan or projected outputs, such an exploratory trajectory must be recognised as deriving from a position of privilege. However, this view must be balanced with a questioning of the assumption that power can be possessed by any individual. Latour situates power as a 'consequence rather than a cause of action' (1986, p264). Power is thus performed by those who are commonly thought to be powerless, within a vision of society that makes itself in the present (Latour 1986). Nevertheless, the intentional troubling of dualisms in this research is not suggested to provide a way of engaging in research that is devoid of power, surveillance or complicity. Rather, it is intended to foreground the acknowledgment that no paradigms are innocent (Lather 2006). In making claims on knowledge, I recognise the complex relations of power, inequality and collusion that I will be involving myself in as a researcher.

In this chapter I have outlined the methods utilised in this research, and the methodological dilemmas that have informed and guided my practice. The challenge to the dominance of the humanist subject outlined in chapter 2 has steered this approach, in which I have foregrounded experimentation and negotiation over prescription and rigidity. In the ensuing analysis chapters will demonstrate the insights generated through these methods.

Chapter 4: Masters of the Universal: MOOC education and the globe

Introduction

An idea of ‘globalisation’ is frequently cited as one of the primary rationales underpinning the MOOC project. Globalisation is a term that is inconsistent and rarely defined in the context of education (Tikly 2001), under-theorised beyond educational policy analysis (Edwards and Usher 2008), and too often simplified ‘as either neo-liberal orthodoxy or post-modern grand narrative’ (Clegg *et al.* 2010, p40). Yet elsewhere higher education institutions are positioned as significant intermediaries in ‘a wide range of cross-border relationships and continuous global flows of people, information, knowledge, technologies, products and financial capital’ (Marginson and van der Wende 2007, p5). Similar assumptions related to increasing interconnectedness, multiculturalism, and the worldwide availability of knowledge appear to be situated as both the justification and objective of educational projects such the MOOC. Media reports frequently attest to a ‘global thirst for education’ (Tickle 2014), or the international demand for ‘foreign’ provision (Marginson 2012), and typically conclude that a local or domestic focus can only spell the end for the higher education institution. Emerging reports on MOOCs also appear to employ vague notions of the global. A recent report from Universities UK describes the MOOC as a ‘global’ model of educational delivery, suitable for the increasing challenges of globalisation and internationalisation (Universities UK 2014, p2). In the provocatively entitled, ‘An Avalanche is Coming’ Barber *et al.* refer to ‘globalisation’ fifteen times, with each instance appearing to indicate a powerful transformative force set to engulf higher education, yet the term itself remains largely undefined (2013). Nevertheless, educational institutions are warned against the imminent threat of ‘entirely new models of university which are seeking to exploit the radically changed circumstances’ (Barber *et al.* 2013, p18), situating globalisation as not only the cause but also the unavoidable goal of the sector’s survivors. In a similar vein, Yuan and Powell highlight a number of ‘drivers and trends’ towards openness in higher education, including ‘[g]lobalisation and the increased momentum for internationalisation in higher education’ and ‘[w]orldwide growth and increasing demand for access to higher education, with the projection that there will be 120 million students worldwide by 2020’ (2013, p15). Significantly, although again undefined, globalisation is once again positioned as both the justification and the ambition of projects such as the MOOC.

However, where globalisation is thought to be both the driver of the MOOC, as well as its ultimate expression, it is positioned as a phenomenon without history or origin, and to which we are headed without question or doubt. Globalisation may be a useful term for broadly summarising recent shifts in economic, political, cultural, and communicative phenomena, or as Edwards has suggested, the ‘intensification of the processes and the awareness of the globe as a single environment’ (1994, p10). However, it is nonetheless a highly contested concept (Rizvi 2007). Clegg *et al.* show how it is framed as ‘both desirable and unstoppable’ (2010, p42) in educational discourse. At stake is the assumption that globalisation is ‘an objective self-evident entity’ (Rizvi 2007, p256), serving as a powerful and universal rationale for MOOC provision. Such reification masks both the historical and political contexts which have produced the contemporary world, as well as the manifestation of power involved in such an interpretation (Rizvi *et al.* 2006, Rizvi 2007). As a result, the globalised world is too often interpreted as a universal condition or ‘a single homogeneous planetary space’ (Rizvi 2007, p260). Rizvi astutely highlights the way that both critics and advocates of globalisation in education tend to be ‘complicit with the claims of its empirical reality and historical inevitability’ (2007, p258). Rizvi *et al.* (2006) and Rizvi (2007) call for a postcolonial analysis as the way to counter the problematic apolitical and ahistorical assumptions of globalisation, and it is precisely this approach which will be used in this chapter to reveal the humanistic tendencies underpinning the project of the MOOC.

Specific to higher education, Clegg *et al.* critique the alignment of globalisation with deterministic accounts of technology (2010). As such ‘globalisation and the “information society” or the “knowledge economy” are seen to automatically equate with the technology that facilitates the rapid movement of information’ (Clegg *et al.* 2010, p46). This reflects the ‘solutionism’ I will examine in the promotion of the MOOC platform, where the technology is suggested to replace outdated institutional models by virtue of the ways it both mirrors the functioning of society, and serves the educational needs of a global population. In these ways, I suggest that the project of the MOOC adopts an incoherent position with regards to determinism (see Kanuka 2008). Elsewhere, university rankings have been suggested to standardise global universities according to US and Western models (King 2011). Such homogenising tendencies will be shown to take on a more profound orientation in the MOOC project by assuming a narrowly defined rational and autonomous subject of education.

The purpose of this chapter is show how the tendency to assume a universal humanist subject binds the project of the MOOC to a colonialist arrangement that constructs education as the export of knowledge from elite institutions to awaiting populations. It will begin by returning to the discussion of humanism in chapter 1 in order to relate these ideas more directly to the project of European colonialism. I will therefore draw upon a specific selection of literature that deals with the intersection of (post)humanism and (post)colonialism for this purpose. I will suggest that the colonialist missions of the European imperialist powers were tightly bound to the principles of humanism. As such, the notion of ‘Europe’ can be understood as a transcendent ideal, with which colonialist powers could seek to impose ideas of Western civilisation upon others. Underlying such imposition is the figure of rational and autonomous Man, which casts colonialism as an epistemic force as well as a territorial one. In other words, colonialism will be suggested to inflict particular ways of thinking, and particular ways of being human, upon the colonised. In this way, the postcolonial theory I draw upon builds on the critique of humanism offered by posthumanism, and the recognition of subject | object divisions described in new materialism, to articulate how the learning subjects of the MOOC are constructed. This analysis will build towards the suggestion of a colonialism specific to the MOOC project: not the straightforward acquisition of territory or the marginalisation of populations, or the exporting of knowledge (Portmess 2013), but rather a ‘data colonialism’²² orientated around the capturing of personal information from MOOC participants.

The subsequent three sections will draw on this theoretical position to analyse the promotion, research, and structure of the high-profile MOOC platforms offered by Coursera, edX, Udacity and FutureLearn. These three stages of analysis are crucial, I suggest, in examining the MOOC project in the context of the claims of globalisation. The corporate promotion of the MOOC reveals, strikingly, how the world is being perceived by the organisations behind this project of global education. The analysis of subsequent research is vital in identifying the ways in which such views are being legitimised, and the examination of the MOOC platform is equally essential in exposing how particular views about education are materialised. Thus, the structure of the analysis in this chapter is intended to flow sequentially from promotion, to research, to the platform, highlighting the ways in which colonialist tendencies surface in the discursive, scholarly, and material facets of the MOOC project.

²² Al-Shorbaji (2013) has used this term in a keynote address to describe situations where Non-Government Organisations collect and use data in their work in developing countries, yet without the benefits of this data reaching the countries themselves.

Firstly, I will examine specific elements from the websites and promotional materials of these organisations, in order to identify the colonialist assumptions that underpin the marketing of the MOOC. This will expose the broad assumption of global populations that are both deficient in education, and demanding of elite institutional provision. Here the technology of the MOOC is positioned as the ultimate solution to this two-fold problem, and corporate promotion will be shown to emphasise testimonials from geographically diverse participants. I will closely analyse a number of images used in the promotional videos of edX in order to critique this rhetoric of flexibility and accessibility. This will foreground discrepancies in accessing the required technology, as well as the problematic politicisation of a discourse that appears to disregard the specificities of location. The section will conclude with the discussion of a prominent visualisation created by Coursera, depicting global enrolment statistics (see fig 29). This analysis will highlight two crucial ideas for this chapter. Firstly, an overt colonialist arrangement, underpinned by the framework of the humanist subject, in which a small number of elite institutions located largely in ‘the West’ engage in a unidirectional form of education directed at the rest of the world. Secondly, the data collection strategies of the principal MOOC platforms that are concerned with capturing increasing amounts of personal information from potential enrollees, constituting, I suggest, the most profound and distinctive colonialist tendency of the MOOC.

The second analysis section will examine the ways in which an apparent obsession with the ‘global context’ also appears to be influencing emerging MOOC research. I will illustrate how maps of the world appear frequently in studies of Coursera and edX, sustaining the idea that the entirety of the globe is the authentic setting for the MOOC project. I will show that, while such visions bolster the expansionism of the MOOC, they also reveal significant inconsistencies in the narrative of universal and egalitarian access. Furthermore, the methods of collecting location data will be shown to constitute complex sociomaterial practices that challenge the neat view of global participation, and foreground the significant reliance on a technological infrastructure that is vastly unequal, and that, itself, betrays the legacies of colonialism. Nevertheless, the mapping practices of research will be suggested to continue the colonialist inclination, identifying territory for further expansion by revealing areas of non-participation. As such, I suggest that these maps manifest as visualisations, not of the world, or indeed of a territorial colonialism, but rather of a data-colonialism, constituted as they are from the acquisition of personal information.

The final analysis section necessarily examines the MOOC platform: the apparatus through which the colonialist desires of corporate promotion materials, and the data collection strategies of research, are assumed to be realised. I will show how the platform is designed for a *scaled* education in which a single model is replicated for a large number of students. I suggest that the significant global reach of the MOOC creates the conditions for increased standardisation in education, related specifically to ways that the platform structures the kind of education on offer. Mostly importantly however, the platform will be shown to embody and align the two primary concerns of the corporate MOOC project: a humanist mission of educational empowerment and a determined strategy of data collection. This alliance is discussed through an analysis of the platform registration process, revealing a marked emphasis on single identity which solidifies a particular humanist-informed notion of participation at the core of the MOOC experience, and lays the groundwork for the future amassing of ‘uncontaminated’ personal data.

Humanism and colonialism

All humanisms, until now, have been imperial. (Davies 1997, p131)

Let us imagine the celebrated ‘Cartesian subject’. He is made in the image of his inventor. He is white, a European; he is highly educated, he thinks and is sensitive, he can probably even think in Latin and Greek; he lived a bit too soon to be a bourgeois, but he has class confidence; he has a general confidence in his existence and power; he is not a woman, not black, not a migrant, not marginal; he is heterosexual and a father . . . It is entirely clear to us that this model of the subject is centred, and unified, around a nexus of social and biographical characteristics that represent power. (Barrett 1991, p90)

Colonialism is firmly rooted in the humanist canon. In this section I describe how colonialism can be understood, not just as an act of seizing or influencing geographical territory, but also as a way of imposing and establishing a dominant understanding of the human subject. Colonialism is epistemic as well as political, an idea underscored by Spivak as the violent assertion of Western ways of perceiving the world (1988). Despite the many historical variants of humanism (Davies 1997), inclinations for expansion appear consistently. As Davies notes, the earliest proponents of humanism, the fifteenth and sixteenth century *umanisti*, were travellers, conveying classical Greek texts amongst the scholarly and aristocratic networks of Europe (1997). This mobile, peripatetic ethos took on a different inflection in the Enlightenment, where influential figures such as Francis Bacon fostered an idea of knowledge ‘not . . . as contemplative wisdom but as “empire”, active conquest for practical ends’ (Davies 1997, p107). The point to stress here is that this

emergence of empiricism rested on the rigid separation of subject and object, and the subordination of the latter to measurement and discovery. Such is the clear ‘affinity between the imperialist subject and the subject of humanism’ (Spivak 1988, p202). Crucially for this discussion, it is the figure of the rational and autonomous ‘Man’ of the Enlightenment that became the principal export in the colonialist tendencies of the West. Braidotti describes this as ‘a tacit consensus about the self-evidence of the universalizing powers of self-reflexive and self-corrective reason’, transforming ‘Europe’ from ‘a concrete geo-political location, and a specifically grounded history, into an abstract concept and normative ideal that can be implemented across space and time’ (Braidotti 2011, p210). In drawing upon postcolonial theory in this chapter, I therefore interpret references to ‘Europe’ as indicative of this broader humanistic ideology. The power of this ‘Europe’ rests in its claim of normalcy, such that its dissemination is justified through the subordination of difference and alterity.

Although regarded as a humanist, who wanted to ‘rescue Humanism from its European perpetrators’ (Braidotti 2013, p24), Fanon attests to the expansionist and colonialist drive of the humanist ideal: ‘The West saw itself as a spiritual adventure. It is in the name of the spirit, in the name of the spirit of Europe, that Europe has made her encroachments’ (2000, p24). This notion of ‘spirit’ highlighted by Fanon is crucial here for two reasons. Firstly, it points to the transcendent ideals of humanism; ideals that were assumed to be universal and applicable in all contexts. Secondly, it alludes to the humanist inclination to civilise, advance and educate those not matching the tenets of reason; that becoming more human, in this European sense, is the emancipation needed and desired by all peoples of the earth. The colonialist tendencies of those championing humanism are also discernible in the ‘commercial, scientific and imperial expansionism’ of the nineteenth century, as well as in the fascism and socialism of the twentieth century (Davies 1997, p72). In these ways, humanism, in its various guises, is the ideology that appears to have buttressed much of European imperialism and domination. Indeed, this relationship goes back to the origins of Western civilisation. In discussing J.A. Symonds’ *The Renaissance in Italy* (1877), Davies contends that from the early teaching of classical Greek texts ‘flowed not only the colonisation of the Americas ... but the imperial destinies of nineteenth-century Germany, France and above all Britain’ (1997, p23).

Postcolonial theory provides a valuable critical perspective on these colonialist dimensions of humanism. While by no means a unified or uncontested theory (Mishra and Hodge 1991), a major focus of postcolonialism has been the formation of the subject, shaped by the

vestiges of colonialist rule and Western reason (Rizvi *et al.* 2006). Within the context of literary studies, Mishra and Hodge align postcolonialism with Lyotard's Postmodern Condition (1986), suggesting 'an always present "underside" within colonization itself' (1991, p407). This importantly reflects the non-oppositional approach discussed in chapter 2, situating postcolonialism, not in a negative and hierarchical relationship with colonialism, but as a critical transversal which holds it to account. The notion of subjectivity also garners further nuance in postcolonialism, where peoples are rendered *subject* to the empire. Nevertheless, as Mishra and Hodge stress, within the colonialist orientation, the centre always controls who is granted the privilege of being a 'self' (1991). It is against this arrangement that much of the postcolonial approach 'foregrounds a politics of opposition and struggle, and problematizes the key relationship between centre and periphery' (Mishra and Hodge 1991, p399).

Importantly, it is my intention to use postcolonial theory in this chapter to analyse the corporate promotion, research and structure of the MOOC, not the assumed existence of a straightforward colonial condition involving an imperial centre and a colonised periphery. For example, as highlighted by Bayne and Ross, there are instances where MOOC teachers and platform providers attest to national or supra-national pedagogies underpinning their work; the former being teachers involved with the FutureLearn platform and the latter the self-styled 'European' platform OpenupEd (2014). In these examples a concept of the 'global' appears neither to drive the kind of education they offer nor the expected result of their endeavours. Chapters 6 and 7 will further demonstrate that MOOCs are involved in much more complex enactments of educational space. It might also be argued that higher education is indeed being transformed by the MOOC, in the sense that partnerships with for-profit companies constitute a de-centring of the established locations of power in the delivery of courses. However, to consider that such a move is driven by an uncritical state of 'globalisation' habitually assumes that existing power structures and inequalities do not persist or re-emerge in the newly connected world, and that such a de-centring automatically eradicates discrimination and elitism. Therefore, the analysis here is not intended to suggest that colonialism simply resurfaces in its imperialist form. Neither do I assume that there *is* a colonised or subaltern in relation to the MOOC, and nor do I claim to understand or speak for such a designation, a criticism often directed at postcolonial approaches (Spivak 1988). Rather, I draw upon postcolonial theory to identify the colonialist tendencies that underpin the corporate MOOC model; that surface in their marketing campaigns, emerge in associated research, and direct the design of their platforms.

The Corporate World of the MOOC

The corporate promotion of the MOOC is underpinned by ‘missions’ and ‘visions’ for global reach and universal educational provision. Udacity’s mission statement, notably accompanied by a visual representation of the globe branded with the company’s logo, makes this purpose explicit (see fig 17). The idea of increasing the welfare of potential students is framed here as the sole motivation for the organisation’s drive to extend its services across the world, justifying this strategy on the grounds of ‘human rights’.

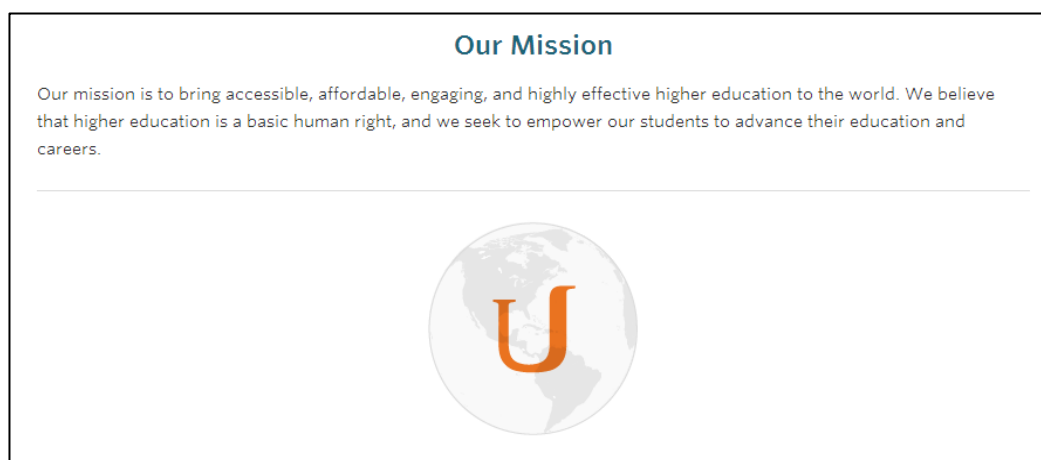


Figure 17: Section from the ‘About Us’ Udacity page from 2013, depicting the image of a globe
<https://www.udacity.com/us>

This sentiment is reflected in Coursera’s ‘vision’ for the future of education: ‘We aim to empower people with education that will improve their lives, the lives of their families, and the communities they live in’ (Coursera 2014c). A colonialist outlook appears barely disguised in these statements of core principles. MOOC education is unmistakably targeted *at* particular populations of the world, underpinned by the assumption that certain lives are in need of improving, and that associated families and communities require similar enhancement. The allusions to a benevolent cause in this claim of educational disruption bear all the hallmarks of an established humanist cause, where, as Davies incisively contends, ‘[r]evolutions are made in the name not of “you or me”, but of “humanity” (1997, p124). The foundation for the MOOC mission is thus a world of lack and inferiority; predicaments that must be solved with the emancipatory education of elite universities, and facilitated by the far-reaching technologies of the Coursera or Udacity platform. These two ideas appear to drive the corporate promotion of the MOOC: firstly that the world is in

desperate need of the kind of education they can provide, and secondly that technology provides the unproblematic solution to this demand.

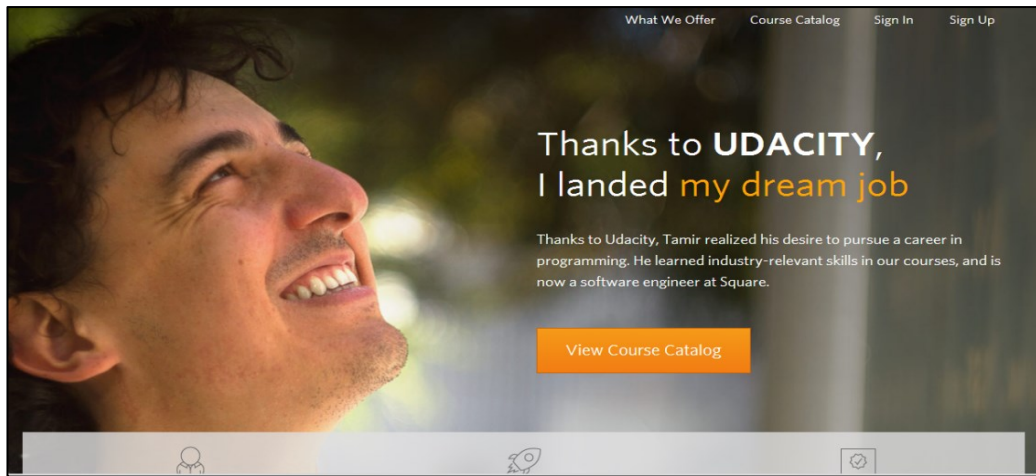


Figure 18: Udacity homepage from 2014 showing one of a number of alternating testimonials from participants <https://www.udacity.com/>

Student testimonials have become mandatory in the corporate promotion of the MOOC, with all four of the major platforms prominently featuring participant endorsements, typically emphasising a diverse range of geographical locations. Coursera place six student testimonials prominently on their ‘community’ page (Coursera no date b), while FutureLearn include a ‘Your Stories’ category in their blog, at the time of writing featuring five accounts of participation (FutureLearn 2014b). Significantly, Udacity’s 2014 web re-branding features a range of alternating student success stories on their home page (see fig 18). The prominence of these testimonials reveals the perceived importance of the student voice in the promotion of the MOOC, particularly as verification of the international demand for their offerings. The notion of world-wide participation is made explicit on a dedicated edX website entitled: ‘You are edX, share your stories’ headed by a stylised map of the world with the suggestion of location markers (see fig 19).

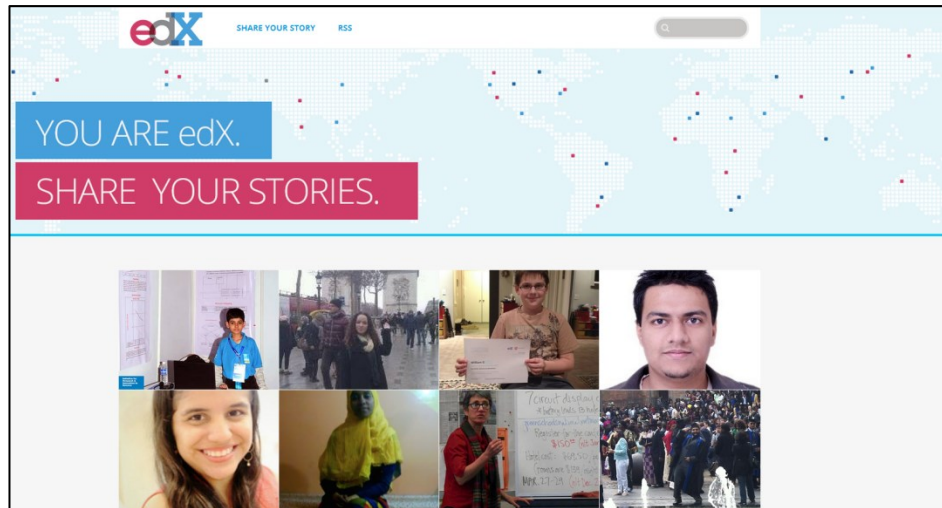


Figure 19: A screenshot from the edX website 'YOU ARE edX SHARE YOUR STORIES in 2014, featuring profile pictures of participants and a map of the world.
http://edxstories.tumblr.com/?utm_source=edX+Course+Announcements+Mailing+List&utm_campaign=f72e47dc6b-Studen

It might be argued that such accounts are intended to counter the idea that centralised MOOC providers speak on behalf of their target audience, a notion which postcolonial discourse might label a form of 'political ventriloquism' (Haraway 1992). Nevertheless, these accounts appear highly selective, chosen for their demonstration of diverse locations and backgrounds, and their positive articulation of MOOC participation. Rather than constituting any real inclusion in the MOOC project itself, the student voice in these testimonials appears to be enveloped in the corporate promotional machine.



Figure 20: A still from edX promotional video 'Welcome to edX' depicting student 'Myriam' from Argentina (edX 2013b).

In a further gesture towards the student testimonial, a number of MOOC students also appear in two promotional videos by edX, yet their contributions are mostly limited to stating their name and location (2012b, 2013b). The promotional leverage of these sequences seems overt in the prominent identification of nation state, included in a larger font size than the name of the individual depicted (see fig 20). The diversity and exoticism of participant locations is clearly the emphasis here, rather than the contribution such an individual might bring to the MOOC experience. Further images of edX's supposed globally distributed participants feature prominently in their videos, attempting to emphasise both geographical distance from the campus (see fig 21) and participation from the global south (see fig 22). These images are significant in what they reveal about the ways that MOOC organisations seek to promote their offerings as engaging the diverse and distributed populations of the globe. However, they also divulge important indications of the 'global context' in which these MOOCs are engaging, and the considerable inconsistencies of access to the technological means to participate.

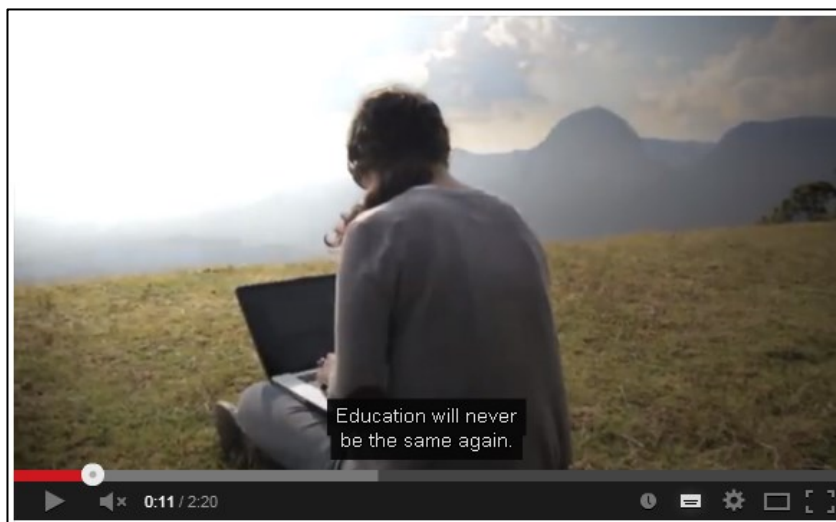


Figure 21: A still from edX promotional video 'edX -- How it Works', showing a figure using a laptop outdoors (edX. 2013a).

Figures 5 and 6 appear in sequence in the video 'edX -- How it Works' (2013a), and are intended to show diverse, yet equal participation; one might be located anywhere in the world, but access to edX is what unites all involved. The facets of this visual gesture are, firstly, *flexibility* in figure 21, which depicts a hypothetical MOOC participant using a laptop in a scenic outdoor location. The message here seems to be that a participant can study wherever they are, and that location is no barrier to admittance. The second image in the sequence appears to suggest *accessibility*, portraying a group of supposedly non-Western participants clustered around a number of desktop computers (see fig 22). The implication

here is that everyone can participate in the MOOC offering, and the combined sequence seems to suggest the possibility of world-wide participation, in which the peoples of the earth are diverse yet seemingly alike in their educational endeavours. The specificities of context and location are subordinated to the theme of universal commonality; a human involvement in the global project of the MOOC. However, despite attempts at representing universal participation in education, these two images contain significant differences in the method of access.



Figure 22: A still from edX promotional video 'edX -- How it Works', depicting MOOC participants that appear to be non-Western (edX. 2013a).

Both the scarcity and inferiority of technology in non-Western regions is signalled by sharing of computers, and the CRT monitor in figure 22; an outdated and cumbersome visual display compared to the slender, lightweight device depicted in figure 21, revealing that the realities of participation are far from consistent. This point is not simply about the visual display, but rather the substantial inconsistencies in access to technology for which the CRT is merely symbolic. For example, Internet penetration rates suggest 21.3% for the African continent, compared with 84.9% for North America (Internet World Stats 2013). While the significant inconsistencies and disparities engendered by new technology appear to be acknowledged here, the portrayal fits a pattern: that of 'a hastily reconstructed sense of the pan-human bond induced by globalisation' (Braidotti 2013, p42). Rizvi attests to this typical positioning of technology in the context of globalisation:

New information and communication technologies have enabled instantaneous circulation of information, ideas, and images, making it possible to conceive of the world as a single space shared by all of humanity. However, the routes of this circulation have hardly been

symmetrical and equal. On the contrary, the so-called global culture has by and large reproduced the colonial structures of inequalities, with the postcolonial elite playing a major role in their reproduction. (Rizvi 2007, p261)

What is exposed by these two images is precisely the contradictory logic of globalisation: '[t]imes of fast-moving changes that do not wipe out the brutality of power relations, but in many ways intensify them' (Braidotti 2011, p10-11). Simultaneously, the MOOC is involved in both the opening of opportunities for flexible and universal education, yet also the deepening of inequality by establishing its offer upon acutely disproportionate access to technology. For example, Coursera have acknowledged the challenges presented by the African continent where a significant proportion of Internet access is achieved through non-smart mobile phones, which '[don't] really give us a good user experience' (Koller quoted in Rivard 2013c). Given the prominence of the streamed or downloaded video lecture in the MOOC (Rodriguez 2012), users attempting to participate with a regular mobile phone would be excluded entirely from the primary course content. What is especially significant about the scene depicted in figure 22 is that it is itself a streamed video located on the service YouTube, precisely the kind of content that may be inaccessible to the supposed people that it portrays. Requiring an audience with access to a particular technical capacity, it is a scene *about* rather than *for* the global south. Nevertheless, reference to supposed marginalised populations is very deliberate. Despite some claims that global engagement is not on the MOOC agenda (Lane and Kinser 2012), the recent 5 million dollar investment in Coursera from the World Bank Group specifically for the development of 'emerging markets' (International Finance Corporation 2013) suggests otherwise.

The discursive role of this corporate MOOC promotion also needs to be taken into account. As Braidotti stresses, the falsity of universalism is a marginalising force that renders difference inferior (2011), and the corporate MOOCs need to acknowledge just such normalising influences in the imagery they employ. Connection to the internet is overwhelming portrayed as the new standard of this educational revolution, against which a lack of Internet access is made inferior. The utopic potential of MOOC technology thus masks, not only the inconsistencies in hardware and infrastructure, but also alternative ways in which a global education might *take place*. My use of the phrase 'take place' here is not merely a turn of phrase, but rather signals another significant dimension of the student testimonials and promotional images discussed above. Flexibility and accessibility mean that MOOC participants are not required to travel or commute, but rather to engage *in situ*. The markers of location (see fig 19) and the accentuated nation state (see fig 20) emphasise

this point. MOOC promotion thus ignores existing inequalities in the capacity to *be mobile*; disregarding the idea that such endeavour might be desirable in the outlying populations supposedly advantaged by the accommodating platform. The means to move away from home in order to engage in campus-based education requires wealth and is indicative of particular social status (Holdsworth 2009). In this context, rather than raising the standing of global participants, the technology of the MOOC imposes an acute immobility and sedentarism, manifesting as a less privileged educational mode. This issue will be discussed in further depth in chapter 6.

Importantly, figure 21 also encourages an alternative reading in this respect. Alongside flexible access, the wireless laptop implies a study space without limits. The entirety of world itself is envisioned as an appropriate space for MOOC participation, sweeping aside the differences and specificities of location and place. This notion of a borderless education is emphasised in the promotional video ‘Welcome to edX’ (2013b), featuring the prominent phrase ‘moving across borders’ (see fig 23). This is significant in relation to the testimonials referred to earlier, particularly in the edX promotional videos (edX 2012a, 2012b, 2013b), which clearly acknowledge and emphasise the nation state. Here, however, the gesture seems to be the transversal of such particulars, a capacity supposedly enabled by the global reach of the MOOC. Thus it is not only the inconsistencies of Internet access, but also the contexts of nationality, place, political context and cultural specificity that seem glossed over by an uncritical view of MOOC technology.



Figure 23: A still from edX promotional video ‘Welcome to edX’ featuring the slogan ‘Moving across borders’ (edX 2013b).

The choice of language here (see fig 23) is particularly noteworthy given that an earlier video, ‘Revolutionizing Education On Campuses and Worldwide’ (edX 2012b), containing

much of the same footage as the later version, used the phrase ‘Moving across geographies’ (see fig 24). This deliberate edit from ‘geographies’ to ‘borders’ politicises the discourse and seems to emphasise the colonialist interpretation of the MOOC, framing it as a project which challenges the specificity, legitimacy and autonomy of national education systems and curricula. To imply that borders have no effect is to suggest that the MOOC is impervious or indifferent to context, subordinating the local and the regional to the colonising reach of the platform, and signalling the supremacy and authority of the MOOC model. This reflects the suggestion that MOOCs claim ‘superiority of knowledge and a model of education ready for export without concern for cultural boundary distortions’ (Portmess 2013, p3). While it might be argued that the term ‘borders’ is ambiguous here, such an explanation would appear to constitute a significant lack of attention to the discursive power of this high-profile promotional material.



Figure 24: A still from edX promotional video ‘Revolutionizing Education On Campuses and Worldwide’ depicting the slogan ‘Moving across geographies’ (edX 2012b).

Furthermore, the use of such language is accompanied by an animated graphic in edX’s ‘Revolutionizing Education On Campuses and Worldwide’ video (edX 2012b, see fig 25), depicting a spinning globe that becomes embellished with glowing dashed lines and nodes, resembling a network that progressively colonises the surface. The spatial arrangement presented here is one of territorialisation and dominance; a promotional manoeuvre which attempts to represent the organisation’s global reach and influence. However, significantly, this colonisation is not straightforwardly that of edX occupying physical space across the world, rather the nodes of this territorialising network are supposedly individual enrolees who, through participation, are perceived to constitute the global reach of the network.



Figure 25: A still from edX promotional video 'Revolutionizing Education On Campuses and Worldwide' depicting an image of the earth embellished with dashed lines and nodes resembling a network (edX 2012b).

Therefore, what this animation also reveals is the business strategy which lies beneath the missions and visions of altruistic educational provision and community empowerment. This business strategy concerns the acquisition of enrollees, constituting a colonising manoeuvre, not of earthly territory or nation state, but of the personal data of MOOC participants. While media reporting on MOOCs has played a major role in publicising the magnitude of enrolment numbers (for example Adams 2012, Lewin 2012, Marginson 2012, Pappano 2012), Coursera, edX and Udacity also appear to express a notable interest in how many individuals sign up to their services. At the time of writing, the Coursera homepage prominently displays a dynamically updating figure for 'Courserians', representing the number of individuals signed-up to the platform; currently over 6 million (see fig 26). This centring of participant numbers is reflected in the edX promotional videos, which frequently expresses the desire to increase the number of people signing up to their services (edX 2012a, 2012b, 2013b). In this publicity, president of edX Anant Agarwal states: 'Our goal is to education a billion people around the world' (edX 2012a).



Figure 26: The Coursera homepage from 2013 prominently displaying a dynamically updating figure for the number of platform sign-ups

The interest in amassing students also manifests in marketing campaigns aimed at existing enrollees, such as the following request received from the email address of Sebastian Thrun, CEO of Udacity, on the 16th of June 2012, following my participation in the Computer Science 101 class:

I am writing you to ask a personal favor. I am trying to break the student record for the largest online class ever taught with my new class "Intro to Statistics"[1], which will begin June 25th. Sign up, forward this e-mail to your friends and family and let's set a new record!

Udacity are not alone in this strategy of setting targets for sign-ups and actively seeking the help of existing enrollees to promote and encourage further participation. While perhaps more subtle, the welcome screen for new enrollees to the FutureLearn platform incorporates a similar request: ‘Why not share this with your friends, family or colleagues and see if they might like to join you on this course so you can all enjoy learning together?’ (see fig 27). While this message implies a motive of endorsing social or collective learning, the impetus is unmistakably to increase enrolment numbers. Notably, social media is employed here, not in the service of learning activities or tasks related to the course in question, but exclusively as promotional tools to escalate awareness and amplify potential FutureLearn enrollees.

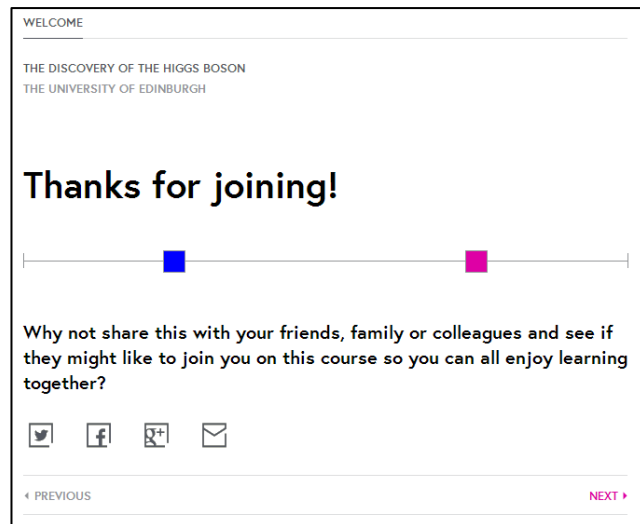


Figure 27: The welcome screen from 'The Discovery of the Higgs Boson' on the FutureLearn platform in 2014, encouraging enrollees to share the course link using social media.

The following excerpt is from an email signed 'Patrick, your edX Community Manager', received on the 9th of January 2014:

Now 1.7 million students strong, edX needs your help to get to the 2 million mark. We're asking you, our students and most passionate advocates, to spread the word with your friends, family and co-workers about our new courses. A simple post on Facebook, a Tweet, or an email to your contacts will help us achieve our mission. Many of you ask how you can help us change the world. This is your chance. Simply tell the world about our new courses. Together, we can connect people from around the globe with a better, more educated future.

As indicated in a subsequent email received on the 23rd of March 2014, the target of 2 million enrollees was achieved (see fig 28). Noteworthy in these edX communications is the allusion to community and collective action, bolstered by references to the 'world' or the 'globe'. These examples appear to demonstrate a significant concern amongst the foremost MOOC platform providers for increasing the numbers of students participating in their services. High enrolment appears to be a priority. Furthermore, the adoption of services such as Facebook and Twitter in these requests displays an interest in contemporary social media marketing tactics that utilise the target audience as promoters of the product. It is existing MOOC participants themselves who are viewed as crucial publicists of the brand. As we have seen with the incorporation of student testimonials, this is another way that practices of corporate marketization and promotion seem to be embedded in the MOOC format.

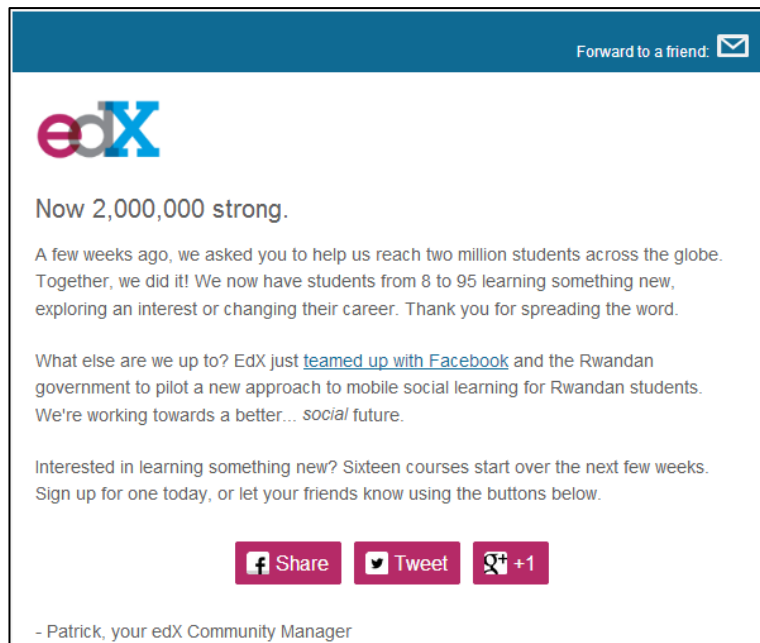


Figure 28: Promotional email received from edX 23/03/14, indicating that the target of 2 million enrollees was achieved.

The project of MOOC expansion and colonisation I have articulated so far is perhaps represented most profoundly in a visualisation created by Coursera (see fig 29). This interactive image depicts a spinning earth upon which the locations of partner institutions are represented by yellow nodes, and nation states are displayed in a hue according to the number of individuals enrolled. The location of partner institutions highlights their significant confinement in the US and Europe, with the global south largely unrepresented. Crucially, the MOOC world is performed here in two different visual arrangements; the specific and exact locations of the educators and the ambiguous territory of the educated, where individuals are subordinated to their nation state (Knox 2014b). While the space of the MOOC is total, the teachers and the taught remain distinct because the former are located as the foci of expansion, whereas any and all peoples of the earth are judged to be legitimate territory for their colonisation²³. Global education is resolutely unidirectional in this formulation of the MOOC: *from* selected universities *to* the awaiting population. As Lane and Kinser suggest, MOOCs ‘play the center against the periphery’ (2012), reflecting the ‘intellectual neo-colonialism’ (Glennie 2012, pv) or the maintenance of divisions between creators and consumers (Amiel 2013) attributed to the Open Educational Resources (OER) movement.

²³ However, given Sebastian Thrun’s declaration that ‘In 50 years ... there will be only 10 institutions in the world delivering higher education’ (attributed to Thrun in Leckart 2012), it may also be universities that are targeted by the colonising impetus of the MOOC.

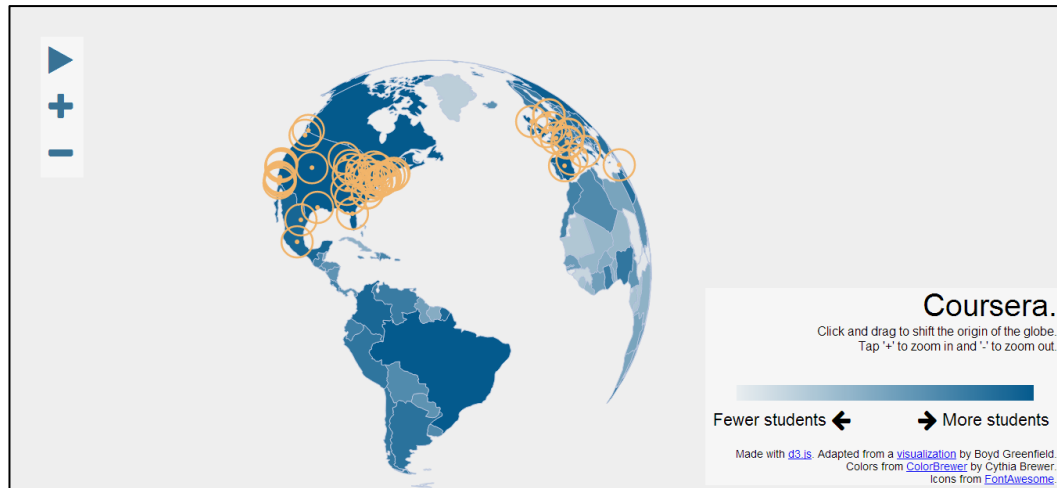


Figure 29: Coursera visualisation depicting the location of institutions and colouring nation states according to student enrolment numbers. <http://viz.coursera.org/2013-02-20-globe/>

In combination with the visual and textual cues highlighted earlier, this visualisation might lead one to interpret the MOOC as an overt continuation of the civilising project of modernity, in which ‘the staunch belief in a “white man’s burden” propelled the movement of European colonial expansions across the oceans of the globe’ (Braidotti 2011, p10). While it may not be ‘Europe’ commencing this particular colonisation, the choice universities enfolded in the offer of MOOC emancipation might be considered the inheritors of its Enlightenment ethos. As an example of this ‘institutional’ rather than ‘continental’ colonialism, the case of FutureLearn appears significant. The platform’s early announcements appeared to stress the UK origin of the organisation, with a focus on international students (FutureLearn 2013). Media reporting emphasised its UK foundations and its competitive standing with the US-based platforms (Parr 2012, Gibney 2013a, 2013b). This is reflected in the UK Universities report, which suggests that ‘Futurelearn differs from the US platforms in a number of ways. It is owned by the Open University, which brings specialist distance learning experience and expertise from a UK pedagogical perspective’ (Universities UK 2014). However, as discussed in chapter 1, FutureLearn has formed partnerships with 10 non-UK institutions, including the University of Auckland (FutureLearn 2013b) and Monash University (FutureLearn 2014b). This apparent shift in direction seems to indicate that a national or local focus is inadequate for the MOOC project; it is elite institutions rather than national agendas which constitute the centre of this colonialist orientation. Nevertheless, one must also acknowledge the legacy of European colonialism in the location and establishment of these privileged universities. Rizvi attests to the long-standing colonialist orientation of education in general, where ‘[i]nstitutional arrangements, disciplinary definitions and hierarchies, legitimizing publications, and institutional authority

reside mostly within the core, with the periphery left simply to mimic the core's dominant discourses and practices' (Rizvi 2007, p257).

Moreover, the overt unidirectionalism of the Coursera visualisation also centres the MOOC platform itself as the source and solution for the world's educational problems. It is noteworthy that entirely absent from the missions and visions of the MOOC are considerations of the socioeconomic context of Silicon Valley itself, from which Coursera and Udacity are funded and based, and about which growing concerns over discriminatory employment practices (Wadhwa 2014), ageism (Scheiber 2014) and increasing social inequality (Gumbel 2014) are being expressed. In visualising such an openly unequal orientation, this image appears to give particular resonance to postcolonial claims made in the latter half of the 20th century: '[t]he Third World today faces Europe like a colossal mass whose aim should be to try to resolve the problems to which Europe has not been able to find answers' (Fanon 2000, p25). The alternative and critical reading of this visualisation is therefore to recognise the potential for movement in the opposite direction; to consider how the vast and diverse territories of the globe can productively affect and transform the practices of the elite. As Edwards has suggested, 'we need to examine the extent to which ... globalising trends bring into the curricula alternative voices, information and perspectives, or further exclude and marginalise less powerful alternatives' (Edwards 1994, p16). The challenges and possibilities of such hybrid relations will be returned to in chapter 7.

The most significant facet of the Coursera visualisation (fig 29) is, however, in the way it is generated: using statistics derived from student enrolments (Knox 2014b). This expresses the global reach of Coursera as exclusively in terms of the number of platform sign-ups. The globe and the student body appear to become one in this visualisation, as the shape of each nation state, and thus collectively the entire earth, come to be only as a result of collective individual participation with Coursera. Enrolment statistics produce and make visible the different nations of the earth, and those areas without enrollees do not appear at all. Furthermore, the emphasis on increasing enrolment numbers is evident in the way that this statistic is used to control the hue of each nation state: the more individuals signed up to Coursera from a particular location, the darker, the more visible, the nation state becomes. In other words, higher enrolment produces a clearer, more tangible geography. In this way the Coursera visualisation appears to embody the underlying colonialist motivations of the corporate MOOC. Images of the globe and territories of the earth are merely superficial and

symbolic; it is the acquisition of enrollees that drives the inclination towards global reach and world-wide influence. The Coursera visualisation might thus be read as a sociomaterial enactment of the MOOC, a performance that entwines both material data and symbolic representation.

Crucially, I suggest that it is the perceived value of student data (Fournier *et al.* 2011, Yuan and Powell 2013) that motivates the MOOC organisations to increase their enrolment numbers. As the Universities UK report on MOOCs suggests, it is the monopolisation of data that has allowed particular corporations to dominate other markets in the digital sector (2014). It is therefore, I propose, the promise of data analytics that underpins the global reach for student data. This provides the context for the apparent desire to enrol unprecedented numbers of participants discussed previously; the more enrollees, the more data these organisations will have to financially secure their position in the emerging MOOC market. Watters highlights the troubling metaphor of ‘data mining’ in this context, and the perceived worth of student data that is implied to be the real impetus for MOOC colonisation (2013). Where user data generates profit for the venture capital investors of MOOCs, serious questions must be asked about the real beneficiaries of the drive for global reach (Watters 2013). The Coursera visualisation (fig 29) can thus also be read as a representation of the increasing spread of data-capture, where the countries of the world become more perceptible as greater flows of data from their citizens enter the databases owned by Coursera. The slogan ‘moving across borders’ takes on an additional inflection here, for while nationality and culture may matter for the individual attempting to participate in a MOOC, the acquisition of data pays less heed to politics or context, and the platform is recast as an uninhibited instrument of data collection. The securing of student data is also one of the rationales for the single platform model employed by Coursera, edX, Udacity and FutureLearn, a strategy which both contains and captures all student activity. I will return to this point in the final section of this chapter.

The promotional imagery, mission statements and visualisations of the foremost MOOC providers emphasise magnitude, extent and reach, and attempt to associate the cumulative enrolment of large numbers of individuals with the notion of a united world and a collective project of education. However, there are significant problems with this discourse. Firstly, the overt humanism of the corporate MOOC project appears to ignore long standing criticisms which view such a position as ‘an ideological smokescreen for the oppressive mystifications of modern society and culture, the marginalisation and oppression of the

multitudes of human beings in whose name it pretends to speak' (Davies 1997, p5). The explicit references to human rights and emancipation might thus be considered to resemble Fanon's Europe, 'where they were never done talking of Man, and where they never stopped proclaiming that they were only anxious for the welfare of Man' (2000, p23). A postcolonial analysis uncovers deep inequalities, often shaped by the history of imperial conquests, which persist in the supposed contemporary world of ubiquitous connection, shared knowledge, and a universal humanity. The question is whether the slick visions of the globe encountered in MOOC promotion serve as a mask for such inequality, and in whose name Coursera, Udacity, edX and FutureLearn actually speak. The colonialist gesture is only fully exposed when we look beneath the marketing slogans and images of diverse learners to consider the business strategies that underpin the primary MOOC organisations. The collection of data is a prime motivator for the expansionism that drives the MOOC project, and, significantly, for the production of the very promotional material analysed in this chapter, designed as it is to encourage ever increasing numbers of viewers to enrol with one of the major platforms.

World-leaning MOOC research

The vision of the globe is emerging as a powerful representation of the MOOC, not just in corporate promotion, but in research emerging from partner institutions and the organisations themselves. The following is therefore not a consideration of the research field in general, but of specific projects with connections to edX and Coursera. Nevertheless, this is in part, I suggest, demonstrative of the discursive influence of publicity that foregrounds the MOOC as project of global education. Significantly, it is *images* of the world which appear to pervade the selected research of Coursera and edX outlined here, a tendency which cements the totality of the globe as the legitimate and incontrovertible backcloth for the mission of the MOOC. This reflects the 'cosmic view' of the world discussed by Kaplan (2006), in which an aerial observation is suggested to derive from Enlightenment and military interests in gazing upon, mastering, and subsequently colonising the globe. Braidotti also describes a cultural privileging of 'a logocentric hold of disembodied vision, which is best exemplified by the satellite/eye in the sky' (2006, p13 citing Haraway 1990), clearly recreated here in the form of visualisations. Significantly however, rather than a literal view from above, the images discussed below are generated, supposedly 'from the bottom up', through data collected from participant activity. They therefore illustrate precisely how the 'global context' of the MOOC is *produced*, rather than being an inevitable reality.

Researchers at HarvardX, the Harvard division associated with edX, have produced a number of interactive visualisations derived from the institution's MOOC offerings, entitled 'HarvardX Insights' (Nesterko *et al.* 2013, see figs 30 and 31 for examples). Reflecting the Coursera visualisation discussed previously, these analyses depict, not simply an image of the world's geographical land masses, but the world as the aggregate of nation states, in which territorial borders are clearly visible. This arrangement provides the backdrop for the visualisations of data on enrolment, certification, gender, education composition and age (Nesterko *et al.* 2013). Each of these data are visualised through a 'heat map', in which the nation states of the globe are coloured according to the percentage of the given variable (see figs 30 and 31). What appears to be the underlying rationale for the 'HarvardX Insights' is the distribution of enrolment, certification, gender, education composition and age according to nation state. Importantly, this means that all measurements of student engagement with the Harvard MOOCs are underpinned by a fundamental classification based on geographical position. In other words, the global reach of the MOOC appears, once again, to be of foundational and primary importance.

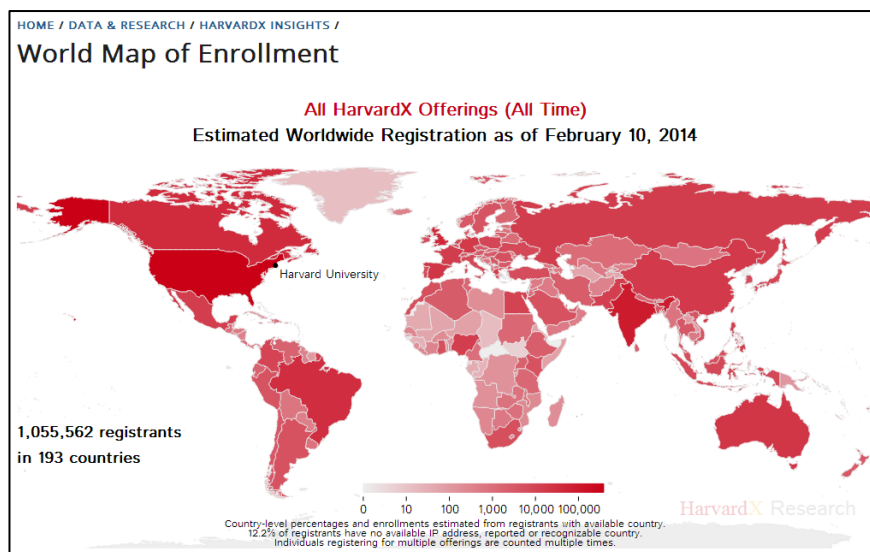


Figure 30: Visualisation of estimated HarvardX worldwide registrants per nation state
<http://harvardx.harvard.edu/harvardx-insights/world-map-enrollment> (Nesterko *et al.* 2013).

Such research therefore appears to be motivated more by a desire to measure the extent of global participation than any apparent educational rationale. Rather than attempting to measure types of student activity or gauge the varieties of experience, this research is clearly intended to *map* the reach of the MOOC, perhaps most obvious in the visualisation of enrolment (see fig 30). What the enrolment analysis reveals, however, is a considerable disparity in participation. In contrast to the visions of universal participation in the corporate

MOOC promotion, many nation states display low enrolment, particularly in the African and South American continents, and the Middle East, but also notably in some European countries. What seems to be made very clear in the way this visualisation is arranged is that *borders do matter*, and the country in which an individual resides will influence their ability to participate in a MOOC. One might therefore interpret this visualisation as exposing, alongside the far reach of edX, the inequalities of Internet infrastructure, and with it the legacy of colonialist privilege and discrimination.

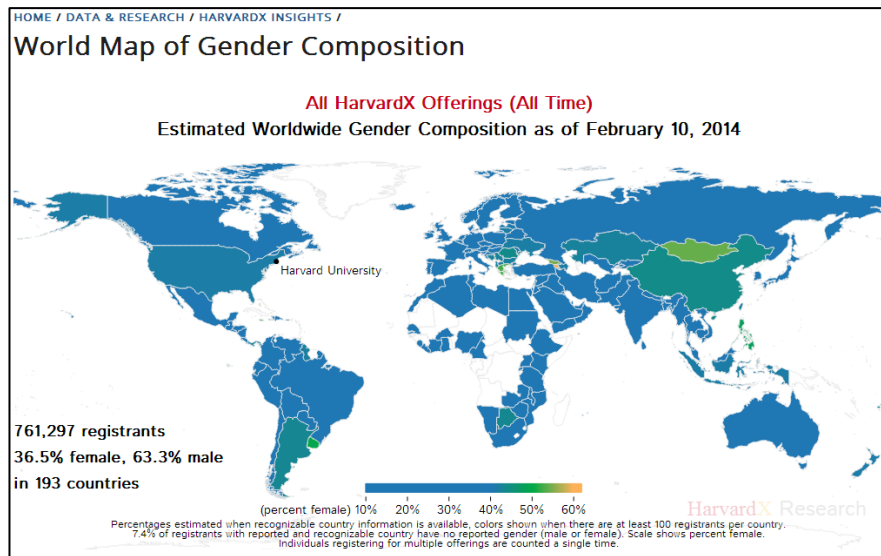


Figure 31: Visualisation of estimated HarvardX worldwide gender composition per nation state.
<http://harvardx.harvard.edu/world-map-gender-composition> (Nesterko et al. 2013).

Importantly, while the ‘HarvardX Insights’ reflect the humanist concern for global influence encountered in MOOC promotion, the way such visualisations are produced involves an application of data that might be considered to undermine such values. Of all the variables considered, gender and age appear to be the only direct measurements of the individual human beings involved. Particularly in the case of gender composition (see fig 31), it is difficult to ascertain an educational rationale for this research, beyond a practice of identifying and categorising MOOC enrolees, a point to which I will return in the subsequent chapter. Moreover, mapping gender according to nation state seems not only to invite questions about the political or cultural contexts that might challenge notions of universal humanity, but also to reduce such a measurement to a homogenous national condition. Establishing a world comprised of discrete nations as the necessary setting for this kind of analysis, sweeps aside an interest in the individual, and instead, represents MOOC participation in terms of aggregate groupings of multiple human beings, political boundaries and geographical forms. In other words, this visualisation does not represent a world of

human beings, but rather a complex assemblage of irreducible social and material influences. In this sense it contrasts the images of successful and enthusiastic learners depicted previously, and begins to reveal the broader complexities of the MOOC project.

This becomes particularly apparent when the data itself is considered. The measurement of location is derived from the IP address detected at the point of enrolment. In published research associated with the 'HarvardX Insights', Ho *et al.* state: 'The country was located by IP address or, if the IP address is missing, the country was located by the parsed mailing address submitted at initial edX registration, if possible' (Ho *et al.* 2014, p25). This indicates some of the problems encountered in capturing such data, and shows how the IP address is not directly representative of an individual, but rather of the specific location of registration or login. In undertaking similar research (examined more closely in chapter 5) Kizilcec *et al.* provide more detail of how this process of location actually takes place: 'Learners' IP addresses were recorded and looked up on a country level using MaxMind's GeoLite database' (2013, p4). Perna *et al.* (discussed below) include a disclaimer in their research that states: 'Only registrants with valid ip addresses were included in the analysis' (2013, see fig 32). These brief insights indicate, not only the contingent relationships between an individual and an IP address, but also the range of data capture and analysis processes, appearing to involve third party services, which are required to come together in the identification of geographical location. Thus, IP address data cannot be considered as the simple measurement of an individual human being, or indeed their location, but rather as the intricate relation of human activity, localised Internet infrastructure, and the complex instruments of measurement employed to pinpoint the intersection of these elements. To attribute such data simply to an individual human being strips away not only the technology that largely determines the location, but also the political and socioeconomic situation that influences what kind of infrastructure is available in the first place. The alternative reading of these visualisations is therefore to recognise the ways that both postcolonial and socioeconomic inequalities, and complex non-human influences resurface, bleed through, the polished façade of world-wide MOOC.

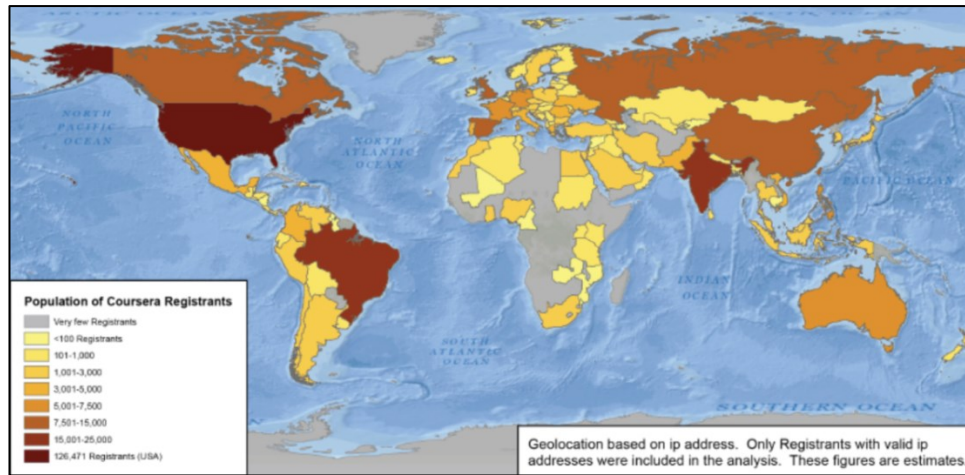


Figure 32: A 'heat map' image of the world depicting estimated registrant numbers on Coursera courses offered by the University of Pennsylvania, geolocated according to IP address (Perna et al. 2013).

In another rendering of the world, Perna *et al.* offer a heat map depicting the IP address location of 'registrants' on the University of Pennsylvania's Coursera offerings between June 2012 and June 2013 (2013 see fig 32). Once again, numbers estimated to derive from each nation state are categorised into ranges that are subsequently visualised in a particular colour; the darker the higher the enrolment. Alongside reinforcing the idea that the entirety of the globe is the authentic setting for MOOC research and debate, Perna *et al.*'s (2013) world reflects a similar enrolment pattern to that depicted in the 'HarvardX Insights' (see fig 30). While the choices of colour-bands in figure 32 present the inconsistencies of global participation more starkly, the same intensity is detectable in the US and India, while a similar dearth of participation blights the African continent.

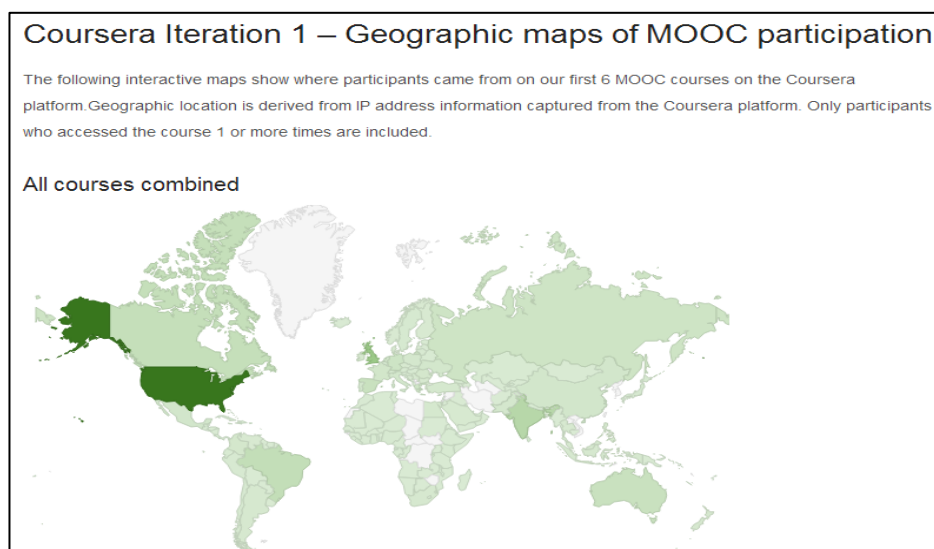


Figure 33: An interactive map derived from Google maps software, showing an image of the world depicting estimated registrant numbers on Coursera courses offered by the University of Edinburgh (<http://moocs.is.ed.ac.uk/edinburgh-report-2/maps-of-mooc-participants/>)

A similar distribution is discernible in the visualisation produced by the University of Edinburgh, showing a clear majority participation from the US and a typical absence in central Africa (see fig 33). If such estimates are representative of actual enrolments, this research significantly challenges the idea of a pan-human bond around MOOC education, and serves to highlight the considerable political, economic and cultural differences that stand in the way of the promises envisioned in the universal world of corporate promotion. However, in doing so, these approaches function to maintain the humanist ethos that underpins the MOOC project. By representing the world according to enrolment, and by visualising high numbers more perceptibly, the empty, non-participatory places of the world are rendered abnormal and deviant. To represent African countries as grey, or to render them entirely invisible, merely marks them as spaces for future colonisation. In this way, research also envelopes itself in the colonising drive of the MOOC, providing the very maps by which corporate platforms can target their future expansion.

The image of the world surfaces again in a study of the first edX MOOC, entitled ‘Circuits and Electronics’ (Breslow *et al.* 2013). Significantly, rather than overlaying the data on a map with predetermined land masses and state boundaries, this image visualises only the locations of the IP addresses of ‘Circuits and Electronics’ enrollees. As a result, the countries and continents of the world are not depicted as already existing, but rather as becoming discernible only through enrolment; through the clustered locations of brightly coloured nodes (see fig 34).



Figure 34: Image of the location of edX's 'Circuits and Electronics' participants derived from IP addresses (Breslow *et al.* 2013)

What is important about this visualisation is the way that it foregrounds the production of space in the project of the MOOC. Where the ‘HarvardX Insights’ (Nesterko *et al.* 2013) and the visualisation by Perna *et al.* (2013) subordinate the individual to the nation state, here land masses and territories only manifest as the *result* of accumulated ‘individuals’. However, while this visualisation might seem to maintain a notion of individuality over uniform territory, these nodes are also produced by the complex sociomaterial relations of the IP address. Therefore, it is a space produced as much by Internet infrastructure as it is by human participation. Perhaps most striking in this visualisation however, is what is *not* visualised; the vast majority of the image being an unvarying white expanse of emptiness. Only Europe and India appear discernible as hubs of MOOC activity, while, surprisingly, only the eastern US emerges consistently, with a sharp division along the mid-west frontier (see fig 34). Rather than representing global reach, this visualisation seems to foreground both the unknown and the undetermined in the world of the MOOC, and by implication, the limitations of data collection methods in representing the complexity of world-wide educational activity.

Nevertheless, to summarise these images of the world we must return to the issue of data. Constructed using statistics derived from enrolment and participation, these visualisations and analyses manifest entirely as *representation*. Therefore, the research critiqued here contributes to the construction of the MOOC project, not as one of inclusion, but as one which operates *on behalf* of its assumed participants, echoing the ventriloquism of a colonialist orientation. The maps of the globe are visions reflected back at the real world, produced from data that is selected, recorded and categorised by a minority of researchers, often located within partner institutions themselves (for example Perna *et al.* 20103) or involving people who work directly for MOOC organisation (for example Breslow *et al.* 2013, Ho *et al.* 2014). These visualisations depict the world through the eyes of the centre, not the majority in the periphery, and MOOC participants have no ‘voice’ in how they are portrayed, located, visualised or coloured. However, there is another, more subversive dimension to this reading, and an additional facet to the colonialist manoeuvre. The worlds presented are not just symbolic, but *material* as well. They are comprised of data; data that may represent attributes related to the people of the world, however, data that is ultimately owned or possessed by the MOOC organisations themselves. Therefore, as a material instantiation, these visualisations represent the world-wide consumption of student data, and the broader commodifying processes that underpin the project of the MOOC. In this interpretation, they don’t represent an actual world at all, only themselves. They are not

visualisations of the globe, but illustrations of the expansive and prolific data acquisition strategies of the MOOC. They are visualisations, not of geographical colonialism, but *data-colonialism*.

The MOOC Platform

The remarkable alliance of an under-theorised humanistic ambition for global education and an international campaign of data collection materialises in the MOOC platform. An examination of the platform is indispensable in this discussion because it is the very means by which the colonialist desires of corporate promotion, and the data collection routines of research that is aligned with corporate agendas, can take place. The software offered by Coursera, edX, Udacity and FutureLearn is structured for both these purposes: to accommodate unprecedented numbers of students and to collect data from each enrollee. This section therefore draws on the posthumanism and new materialism defined in chapter 2 to examine how the MOOC platform is involved in the construction of the learning subject. As we shall see below, the MOOC platform is designed to accommodate, and gather data about, a very specific kind of participant; one with a single identity and the capacity for rational self-direction. Thus, the two colonialist tendencies of the MOOC project are embodied in the centralised platform: the assumption of a universal humanist subject with its roots in the European Enlightenment, and the capacity to harvest data on a global scale.

This analysis will demonstrate how a tacit humanist subject is assumed in the very structure of the platform, reflecting and materialising the under-theorised notion of the subject within the MOOC project. Coursera briefly reference the ‘mastery learning’ of Bloom (1971) within their promotional webpages (Coursera no date a), alluding to the area of educational psychology as the grounding principle for the platform. However, while failing to account for the nature of the subject, this fleeting reference to educational research also has the effect of homogenising the field, positioning such perspectives as universally accepted. Therefore, the additional point to be made here is the colonising of varied educational approaches through the promotion of one particular theory of learning by the MOOC platforms, underpinned by the supposition of a universal humanist subject.

In order to accommodate vast student numbers in a single course, the MOOC platform is structured to provide an identical educational experience that can be replicated for each participant. The term ‘massive’ is thus being used in the context of the MOOC platforms to denote the concept of *scale* (Stewart 2013). Drawing on ideas from business, Stewart

defines this in terms of efficiency and economy, and the ability to duplicate processes that provide identical results (2013). As Stewart succinctly points out, this notion of scaled education is premised on the view that technology facilitates increased access to information resources, as opposed to the view that technology affords the ability to communicate with others (2013). This is precisely the point indicated by the Universities UK report: that it is the simplicity of the content-driven focus of the so-called 'xMOOC' model of video lectures and automated quizzes that makes it scalable to large numbers of students (Universities UK 2014). In the context of the platform, 'massive' simply means an amplification of participant numbers, yet the structure of the educational experience it offers, remains largely uniform. This reflects the contestation that MOOCs personalise learning (Bates 2012). This strategy of mass production has led some to consider the MOOC as 'the forefront of the McDonaldization of higher education' (Lane and Kinser 2012), and compare MOOCs directly with the fast food industry (Baggaley 2014). While the MOOC platform can accommodate large enrolments, it is structured with the assumption that each student approaches education in the same way; it is an arrangement which presupposes a universal human subject. Such standardisation is, of course, nothing new to education, nor indeed is a critical response to it, particularly with regards to assessment (see Rubin and Kazanjian 2011 for an example focussed on the US education system). Making a connection between mass schooling and the administration processes of the state, Popkewitz argues:

Standards provide away to make society legible and manageable for governing. Governing is continually expressed as salvation narratives that today are in the name of freedom, liberty, global economic competitiveness, and the inalienable rights of humans. (Popkewitz 2009)

The significance of this insight for the MOOC is in its attempts at an unprecedented global reach. The widespread Internet infrastructure utilised by the MOOC platforms, and, as we have seen, the colonialist impulses of the organisations behind them, create the potential for new forms of global standardisation in education. Such standardisation may not be in terms of identical curricula or assessment, but rather the normalisation of particular ways in which education might take place. For example, the division of 'content', 'assessment' and 'social interaction' that underpin the Coursera, edX and Udacity platforms, structures-in particular assumptions about how education might take place. The platform design thus establishes distinct and largely exclusive activities of engaging in content, undertaking assessment, and communicating with peers; activities that are portioned by the configuration of the software, before any pedagogical design might be implemented. As such, the MOOC platform not

only presupposes a humanist subject, its material composition also influences the production of a particular kind of learning subjectivity: a rational and autonomous individual.

Despite propositions such as that offered by edX president Anant Agarwal, who introduces the platform by asking viewers to ‘imagine taking a class with a hundred thousand or more students’ (edX 2013a), MOOC pedagogy is emphatically structured around a single participant. As we have seen in the introductory chapter, the MOOC platforms share a very similar design, and are arranged to provide each student with identical learning experiences, and uniform assessment, and these two activities are unmistakably preserved as the fundamental and most vital elements of the education being offered. As Friesen and Cressman argue, while such practices of standardisation might provide equitable experiences, they are not pedagogically neutral, but rather ‘constructions that embody specific interests and agendas’ (2007, p508). Coursera, edX and Udacity are consistent in their framing of the discussion forum as an aspect of community formation, and something peripheral to the primary course content. edX describe this aspect of their platform with the unceremonious heading ‘Meet new friends’ (edX 2014a), while Udacity promote ‘[f]orums and meetups with curious, engaged peers to support learning’ (Udacity 2014a), clearly positioning this activity as supplementary. It is notable that on Coursera’s ‘Pedagogical Foundations’ page, the discussion forum is the one aspect of the platform that is not mentioned (no date a). While many MOOCs make substantial use of the in-house discussion forum, its potential prominence is surpassed in all cases by an assessment exercise which consistently reorients the MOOC around the individual participant, and reduces educational activity to a singular and replicable event. Assessment in the MOOC thus follows an established pattern in formal education in which assessment is an independent, private, and concealed exercise that is uniform and standardised. This categorising of educational activity tends to maintain a traditional hierarchical ordering in which core activities of rote learning and assessment are preserved as individual undertakings, while practices associated with social interaction or collaboration are marginalised. While Coursera include peer assessment functionality²⁴ which incorporates a social dimension, assessment of the individual is maintained; group interaction, for example, cannot be assessed. It is also notable that FutureLearn have made a point of publicising the way that social interaction is integrated into the content of their courses (2014c), yet individual assessment remains as the *sine qua non* of course completion.

²⁴ At the time of writing edX and Udacity are limited to automated assessment of MCQs, however edX are reportedly developing a peer assessment module: <http://help.edge.edx.org/discussions/questions/865-new-peer-assessment-tool>

As we have seen with the Coursera visualisation above (fig 29), it is the aggregate of enrolments which underpins and makes visible the MOOC world. This is achieved through a platform which is structured in a way that presumes the uniformity of students, providing a salient example of the way MOOCs are premised upon, and involved in the production of, a notion of universal humanism. A common human condition is tacitly assumed in all those enrolling; a universal desire to learn from video lectures and automated assessment activities that is anticipated by Coursera, edX and Udacity, yet largely unexamined. This relationship between enrolment numbers, global reach and standardised participation enacts a particular closing in the supposed open education of the MOOC. While access to the MOOC platform opens opportunities for engagement in higher education that were previously restricted by financial and geographic barriers, a very particular type of educational experience has been amplified in order to fill this void. The promises and perils of standardisation (Friesen and Cressman 2007) come to the fore here, in that while global provision can be perceived as enacting social justice, it replaces the contextual, local and specific with a singular and privileged way of doing education (Biesta 2009). Given the contractual selectivity of Coursera and edX (Rivard 2013a), both the platform's arrangement of educational experiences and the pedagogical views of a restricted number of institutions are defining the standard of MOOC education, and thus the common sense model of what open online education might be. In this way, the MOOC manifests as a colonising gesture, not only in its high-profile self-promotion, but also in the very educational model which underpins its offer. As such, the platform might be said to materialise the kind of rational humanism advanced in the corporate publicity campaigns. The functioning of the scaled platform brings the images of distant non-western participants into sharp focus: not as the constituents of a new educational revolution, but as the passive recipients of an elite institutional broadcast. Far from being participants in the unified MOOC world, enrolees seem to be closer to a colonised population, paying for the experience with increasing streams of personal data.

Perhaps unsurprisingly, access to courses offered through the Coursera, edX and Udacity platforms requires the creation of a personal account that involves the registration of specific personal details (see fig 35 for the Coursera version). While relatively straightforward, it is a process which solidifies the identity of the individual as the foundational requirement of MOOC participation. One cannot be *in* this kind of MOOC without the establishment of a singular 'self', in the form of a name and contact email, against which all subsequent participation is considered relative. Every engagement with the MOOC requires a log in

which recalls this personal account information and re-establishes a singular identity as the basis for the educational encounter.

Figure 35: Coursera sign up page from 2013 showing the identification requirements for admittance to the service: <https://accounts.coursera.org/signup>

Coursera's Terms of Use (Coursera 2014b) exemplifies an explicit concern for a singular identity and exclusive solitary access to the MOOC:

In order to fully participate in all Site activities, you must register for a personal account on the Site (a "User Account") by providing an email address and a password for your User Account. You agree that you will never divulge or share access or access information to your User Account with any third party for any reason. You also agree to that you will create, use, and access only one User Account, and that you will not access the Site using multiple User Accounts. (Coursera 2014b)

Not only does this formalise the establishment of a singular identity as a requirement for access to the MOOC, it also forbids any disjunction between the 'user account' and the 'user'. An account cannot be associated with multiple human beings, and nor can a single human being be associated with multiple accounts. A similar concern for potential pretence with one's identity is detectable in a section on prohibited activity within the edX Terms of Service (edX 2013c):

You agree not to misrepresent or attempt to misrepresent your identity while using the Site (although you are welcome and encouraged to use an anonymous username in the forums and to act in a manner that keeps your identity concealed). (edX 2013c)

What is notable here is the acceptance of anonymity, yet under the condition that it is the masking of a singular and authentic identity, rather than the adoption of multiple inauthentic

identities. Being anonymous is permitted as long as a core and genuine individuality is preserved. While this may indeed adhere to a particular philosophical position that these MOOC organisations genuinely believe in, these concerns for identity play are also an attempt to preserve the value of user data generated by the MOOC platform. The worth of data is perceived to be in its fidelity to the behaviours of the individual students it represents, and to tamper with that link diminishes the significance of the data. While one might be able to post to the discussion fora within the platform anonymously, this concealment is importantly only so for other members of the class. The crucial point about the sign-up process is that, alongside the student setting up an identity for their own use within the MOOC platform, a unique record is firmly established in the data behind the public or anonymous frontage of the ‘username’. A user is never entirely anonymous from those that administer the MOOC platform, and possess the associated data. In this way, a humanist notion of ‘rights’, in the sense of the right to be anonymous, is accommodated in conjunction with the strategy of data surveillance. In other words, humanism and data-colonialism remain in alliance.

In order to compel enrollees to maintain conformity with their data, Coursera, edX and Udacity foreground an ‘Honor Code’, to which participants are required to agree before enrolment is complete (see fig 36 for the Coursera version). This is a facet of the MOOC platform terms of service that attempts to sum up the requirements of legitimate participation as a set of moral principles directed at individual participation.

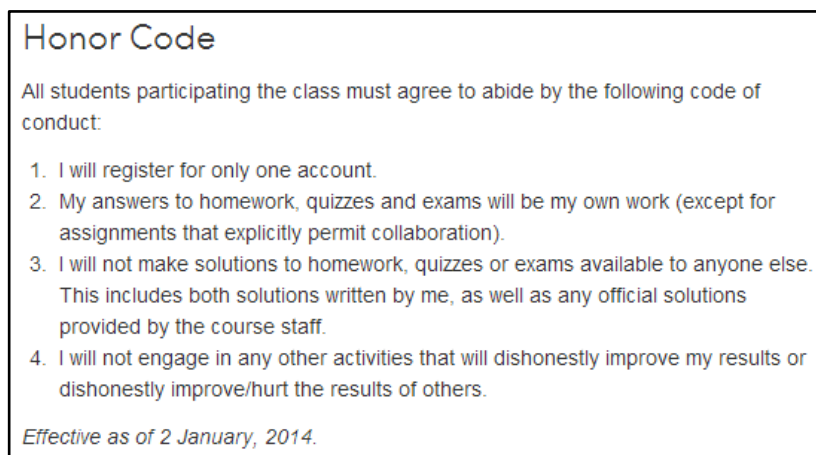


Figure 36: The ‘Honor Code’ from Coursera in 2013, showing four statements to which the enrollee must agree

What is striking about the very similar ‘honor codes’ specified by Coursera, edX, and Udacity is the tight coupling of single identity with potential assessment activities. It is not just data collection that motivates the concern for singular identity, but adherence to

established educational routines which view measurement of the individual as the central concern. Significantly however, rather than clearly stating that data fidelity and established assessment practices are the conditions of admittance, the ‘honor codes’ translate these interests into a form of moral conduct targeted at the individual. Remaining true to a singular identity is framed as an individual’s responsibility; an ethical and principled declaration of one’s ‘self’. It is not a matter of simply following the rules set by the platform; to participate one must consent to performing a particular kind of human subject.

Practices of verifying the identity of MOOC enrollees further solidifies this concern for the genuine participant. Coursera term this service ‘Signature Track’, while edX and Udacity use ‘Verified Certificates’, all of which involve various ways of associating platform accounts with recognised identity documents. edX claim that their procedure ‘shows that you have successfully completed your edX course and verifies your identity through your photo and ID’ (2014b). Coursera claim to verify identity with the use of participant webcams in order to confirm the resemblance of photographic identification with the actual user, combined with a key stroke analysis of typing during course participation. Udacity specify a slightly more elaborate process, in which ‘identity will be verified through a live exit interview during which you will need to show government-issued identification and chat with one of our project evaluators to verify your independent work on your final project’ (2014c). In a striking similarity to the Coursera visualisation (fig 29) and the ‘HarvardX Insights’ (see figs 30 and 31) discussed above, all of these processes necessitate affiliation with a nation state in the form of recognised identification documentation, such as a passport. The idea of data fidelity takes on an additional dimension in these services: the data associated with MOOC participation is aligned with broader and more established routines of national identity tracking and surveillance.

Significantly, verified certificates are positioned as the superior recognition of achievement in these MOOC offerings. Fixing participation to a singular and externally-verified identity is considered a more authentic form of involvement, and to complete a MOOC with such a certificate is to have a better record of achievement. This creates a two-tiered system in which affiliation with a nation state is privileged and alternative notions of identity and engagement are marginalised. The verification of identity demonstrates how, in addition to the desire for data, a humanistic sense of authentic identity also governs the structuring of the MOOC platform. This also reflects the focus on assessment discussed earlier. Rather than data collection being the underhanded and cynical opposition to the project of universal

education, it seems clear that these two objectives are perceived to be allied and complimentary. A humanist project of educational empowerment is assumed to be able to unproblematically co-exist with a strategy of harvesting personal data on a global scale. Reflecting the broader Silicon Valley ethos to which Coursera and Udacity are tightly aligned, the capitalist pursuit of profit can go hand in hand with missions of emancipation and human betterment (Auletta 2012).

Conclusions

This chapter has analysed the promotion, research and platform structures associated with the leading MOOC organisations. I have suggested that the corporate promotion of the MOOC attempts to promulgate a pan-human desire for learning, and a world of universal and egalitarian access. However, contained in the very images of MOOC publicity, I have identified the traces of contradiction. Far from a world of unproblematic globalisation, I have shown how MOOC promotion exposes the vestiges of European colonialism, evident in the vast disparities in Internet infrastructure, and the overt elitism of the partner institutions. Some of this promotional material has been shown to reveal the desire for data acquisition, and it is the promise of this data which is fuelling the research emerging from MOOC affiliates, often in problematic ways.

I have illustrated how images of the world infuse this work; visualisations that are driven by the strategies of data collection undertaken by the MOOC organisations themselves and which provide a sheen of legitimacy to the discourse of expansionism. Nevertheless, I have proposed that these maps also reveal inconsistencies in the narrative of universal admittance, depicting the significant non-participation of global south continents. Moreover, I have shown how these visualisations are constituted from location IP address data in a way that brushes aside the substantial socioeconomic and technological inequalities that are involved in the production of this identifier. I have also proposed 'data-colonialism' as a way of understanding how the legacies of imperialism manifest in the contemporary context of digital networks and for-profit educational organisations. As such, I have suggested that MOOCs are involved a colonialist acquisition of data rather than geographical territory, that is increasingly driving how education is understood. In this way I further contend that colonialism continues to 'shape the lives of people within not only the developing but also the developed world, with a global geometry of power that is inherently unequal' (Rizvi 2007, p260).

Finally, I have outlined the structure of the MOOC platform as the technical means by which a global reach, and a data-intensive strategy of research, is to be realised. I have argued that the MOOC platform assimilates the humanist mission of universal emancipatory education with the empirical project of global data collection. This alliance is forged in the platform registration process, in which a participant is bound to a singular identity by agreeing to an ‘honor code’ that moralises the instrumental requirement for data-fidelity. I have suggested that identity verification services further establish this relationship, providing superior certification by linking the singular identity of the MOOC participant with broader data collection regimes of the nation state.

These analyses have demonstrated the ways in which a colonialist inclination surfaces in the marketing of the MOOC, is maintained in research which visualises their expansion through images of the world, and which informs the design and implementation of the software platforms offered by Coursera, edX, Udacity and FutureLearn. This colonialism is founded on the model of humanist subject, which significantly constrains these agendas through a problematic notion of universalism, and structures the MOOC as an educational broadcast from elite institutions to deficient populations. While this chapter has been concerned with how MOOC stakeholders have responded to the supposed state of globalisation, in the next chapter I will turn to an analysis of the ways that student participation is being measured and understood.

Chapter 5: Colonising communities and domesticating data

Introduction

In the previous chapter I examined the promotional material, research strategies and platform structures associated with the foremost MOOC organisations. While that analysis concerned the corporate vision for a world-wide project of education, underpinned by a fundamental assumption of the universal humanist subject, in this chapter I turn to more focussed considerations of ‘community’ participation. Despite allusions to global enrolment in MOOCs, the means by which such a broad population of learners might engage with these courses, and ways we can understand participation, are significantly limited. Drawing on the posthumanist and new materialist approaches discussed in chapter 2, this chapter will examine how a foundational model of the humanist subject structures and regulates the ways in which student participation is being conceived, measured, quantified, and proposed. In this way, a profound limitation is imposed on the MOOC, and I will suggest that a critical response must look beyond the humanist subject as the foundational rationale of participation in education.

The concern with MOOC participation discussed in this chapter can be understood, in part, as a response to student involvement that has failed to meet expectation; the assumption of a population in demand of elite university provision, and a pan-human desire to learn. Indeed, one of the foremost themes in the MOOC debate has been the perception of a largely silent and indifferent populace, surfacing briefly at the point of enrolment only to disappear behind the veil of inactivity and non-completion. Media reporting contributed to the prominence of this theme, often taking a critical view of the high attrition rates in MOOCs (for example Marcus 2013, Rivard 2013d, Daly, 2014, Pretz 2014). Referring to the report by Ho *et al.* (2014), Pretz states:

In the past few years, several research universities have opened up their computer science, math, electronics, and engineering courses to anyone from around the world. Although millions of people have registered, the study found that only a small percentage actually go on to complete their course. (Pretz 2014)

This sums up, rather simply, the dilemma faced by advocates of the MOOC. Such initiatives have supposedly ‘opened up’ education, and made learning opportunities more accessible, yet only a small proportion of those enrolled are perceived to fully embrace the activities on

offer. Subsequent research has thus been suggested to be concerned with ‘learning more about why students wash out of MOOCs—and what instructors and course designers could do to stem the tide’ (Kolowich 2013a). This exemplifies the response from a considerable proportion of MOOC stakeholders; that poor retention in MOOCs is a problem that must be overcome, and that by lifting the veil on inactivity, attrition can be reversed. It also appears to ignore the activities and experiences of those who *do* complete MOOCs. Such a view seems to retain the belief in a universal desire for MOOC participation; however it shifts the focus away from simply providing access to educational content. Rather, advocates of the MOOC have become concerned with measuring and identifying different types of engagement, as well as proposing guidance about how one should participate in order to fully benefit from the experience. It is these two strategies which will be examined in this chapter. I will suggest that modes of participation are normalised towards predetermined ideas about ‘correct’ involvement in the MOOC, a practice that is underpinned by the standards of the humanist subject. In this way, humanism produces the very conditions for exclusion with the supposedly ‘open’ education of the MOOC.

I begin with an outline of Lewis and Kahn’s theorisation of community and immunization (2010) and Agamben’s concept of the anthropological machine (2004) as the primary conceptual basis for the ensuing analysis in this chapter. Following Lewis and Kahn (2010), I suggest that these concepts can be connected in order to provide the means to understand how community structures regulate the external and unfamiliar, and how this process is governed by the procedural maintenance of the humanist subject. The notion of community and immunisation is suggested to provide a framework for critiquing the normative tendencies in the identification of MOOC participation, and questioning the idea that community serves as a ‘common sense’ and indisputable foundation for educational concerns. I also propose that the concept of the anthropological machine (Agamben 2004) offers a productive way of perceiving humanist inclinations in the proposed learning theory of connectivism, situating notions of rational and autonomous conduct oriented to the production of a human subject at the core of MOOC participation.

The first analysis section will examine the growing concern with student community amongst the principal MOOC platform providers. This will demonstrate how the interest in magnitude and reach, discussed in chapter 4, permeate the ways ‘community’ is presented. I will show how the value of interaction between participants is acknowledged, yet relegated to a third party service.

This extends into the analysis of emerging research that attempts to identify participants and categorise modes of participation. Following the behaviourist inclinations associated with the MOOC platforms (Rodriguez 2013), these studies will be shown to adopt very similar strategies of categorising participants according to contextual information, such as age, gender, location and educational background. Additionally, the measurement of participation is also shown to adhere to similar routines, categorising enrollees into narrow groups that span from the privileged ‘active’ to the abnormal ‘passive’. The term ‘abnormal’ is important here, and following Lewis and Kahn (2010), I will use it to signal how unknown elements are rendered deviant in way that is directly related to a ‘normal’. I will suggest that these practices serve to recast silence and non-participation as a rational and legitimate mode of participation. The methods of data capture will be emphasised here as procedures which *produce* passivity and ‘lurking’ by relating all modes of engagement to the privileged mode of ‘active’ course completion. I go on to suggest that the research strategies analysed already presume a ‘normal’ type of participation, and thus end up measuring deficiency rather than acknowledging difference.

In the second and final analysis section I turn to ways in which participation has been described by advocates of ‘connectivism’. This highly contestable and nebulous theory is frequently positioned as the alternative to the broadcast model of the corporate MOOCs, and rather than concerning itself with strategies of measurement, it will be shown here to *propose* and construct as normative certain ways in which MOOC participation might take place. I will emphasise how work in this area has emphasised relationships between individuals in the form of a network, rather than the unidirectional access-to-content privileged by the platform-based MOOCs. However, focussing once again on the discussion of lurking, I will show how connectivist theorists tend to default to similar normative agendas, prohibiting silence and enforcing particular predetermined modes of engagement. Rather than providing a contrast to the platform model of the MOOC, I propose that these ideas serve to further solidify a narrowing of open education by assuming a universal population and predetermining permissible conduct. This will extend to an analysis of the Personal Learning Network (PLN), which I will suggest to sit at the core of the connectivist MOOC proposition. I will illustrate how the PLN establishes a rational and autonomous human subject as the source and limit of activity, and regulates a process of connection which sustains the boundary of the humanist subject and eliminates the potential of irrationality and difference.

The focus of this chapter is therefore about the production of a particular kind of learning subject through the discourses, research practices and theorisations of the MOOC; a learning subject that is formed through routines of purification that excise difference and alterity. While this analysis is underpinned by a new materialist concern for hybrid, sociomaterial relations, I have chosen to focus on aspects that I perceive to be most actively and profoundly involved in the construction of a MOOC subjectivity; and these might be understood as predominantly ‘social’ in their character. This is not to suggest that there are no material influences on the production of subjectivity in the MOOC, rather that the social aspects warrant particular and sustained attention in this chapter. I identify a specific material focus for future research in the conclusion, and engage more directly with non-human contingencies in chapters 6 and 7.

Immunizing communities and the anthropological machine

This analysis will draw upon two theoretical resources introduced in chapter 2: ‘exopedagogy’ (Lewis and Kahn 2010) and the anthropological machine (Agamben 2004). In the work of Lewis and Kahn, I will focus on their critique of community as an immunizing practice that excises difference (2010). Crucially, this work draws upon Hardt and Negri’s concept of the ‘multitude’ (2004), a theory of the complex and irreducible populations in an increasingly connected and globalised world. The multitude is a ‘life in common’ of irreducible difference and plurality that works against similarity and uniformity (2004). Significantly for Lewis and Kahn, this multitudinous characteristic is rendered monstrous by modernity; a radical outside that must be tamed into the domesticated public or the purified community (2010).

The multitude is what the community deems the excessiveness of alterity and the public deems irrational noise of the streets and the nation-state deems barbarian. From inside these boundaries, the multitude becomes a threat, its elocution nothing more than senseless babble, its demands nothing more than irrational complaints, and its actions nothing more than assaults against the common sense organisation of community or nation-state or capitalist productive processes. (Lewis and Kahn 2010, p30)

Rather than focussing on the specifics of the multitude, or the propositions of exopedagogy – concepts addressed more fully in chapter 7 - this chapter will concern itself with deconstructing and critiquing the ‘common sense’ working of the ‘learning community’. In attempting to engage global populations, those involved in MOOCs have sought to measure

and rationalise participation, and it is Lewis and Kahn's perspectives on populations and communities (2010) that will inform the analysis of this reaction. The notion of community will be shown, not to offer the openness or inclusion implied by the corporate MOOC promotion, but rather a rigid system of immunization and indoctrination, in which any difference of the 'outside' is sublimated into the predetermined workings of the 'inside'. In other words, both the strategies of measuring MOOC participation and predefining modes of connectivist engagement employ a logic of purification that closes down rather than opens up educational possibilities. Such a notion appears to be acknowledged by Bartlett in the context of the MOOC, suggesting that the idea of community is fraught with the 'modalities of exclusion' (2013, p7).

In order to examine the specifics of this mechanism, I will draw upon the concept of the anthropological machine (Agamben 2004). Using this as a theoretical basis, I will show how a humanistic sense of rationality and autonomy drive the maintenance of a domesticated MOOC public and a cohesive connectivist community. The anthropological machine functions through inclusion and exclusion, processes which Agamben insightfully describes as already operating within each other (2004). In other words, both processes involve the drawing of boundaries that necessarily produce an 'inside' and an 'outside'. Moreover, this problematic arrangement by which the human being is made distinct from the animal is problematized as a 'zone of indeterminacy' (Agamben 2004, p37), for that which is included is always already an outside, while that excluded must already be in inside. That is to say, it is the attempt at specifying a boundary that produces the human *subject* and creates the animal, rather than these classifications being anterior to the act of identifying the perimeter. The difficulty in identifying a definitive boundary necessitates the continual workings of the machine to erase the zone of indeterminacy. Lewis and Kahn importantly consider this concept within the context of education, suggesting, 'education comes to serve as a social machine to institute this split: producing the human as the negation of the animal' (Lewis and Kahn 2010, p48). The significance for this chapter is that the zone of indeterminacy requires the persistent drawing of the boundary; the tireless process of claiming the distinction of the humanist subject from the non-human Other. This will be shown to manifest as a process of self-realisation and self-development that underpins the MOOC project. In particular, the Personal Learning Network (PLN) proposed by advocates of connectivism will be shown to demonstrate the procedural rationality and self-direction that maintains the humanist individual at the core of the educational endeavour, and enact a persistent banning of radical relations with the irrational other of the network.

In order to link the critique of community with the anthropological machine, I draw upon the concept of the paradigm of immunization (Esposito 2008). The most significant facet for this chapter of this broad political theory is the idea that the logic of immunization begins to turn upon itself, as Lewis and Kahn suggest, ‘eating it away from the inside’ (2010). Lewis and Kahn suggest of Esposito’s immunization, that ‘the temptation of the community is always to immunize itself against the monster, the stranger, the foreigner as exceptions produced above and beyond the logic of legal recognition and civic belonging’ (2010, p21). It is this very process that links the routines of community preservation with the maintenance of the humanist subject: a logic of boundary formation that designates an inside of accepted behaviour and expels an outside of difference. Therefore, I suggest, the very same processes that regulate the community by excising the unfamiliar, operate at the level of the individual, where unfamiliarity begins to be recognised in the self.

Lewis and Kahn suggest that educational projects tend to either ‘project the monstrous onto the outside world’ or ‘repress the monstrous within’ (Lewis and Kahn 2006, p11). The following analysis will demonstrate how these two figurations manifest in the MOOC. Firstly, the processes of participant measurement, and the subsequent discussion of lurking in connectivism, will be shown to ban an external world of difference and silence as ‘Other’ to normal participation. Secondly, I will demonstrate how the connectivist network is grounded in a rational and autonomous individual, rejecting internal difference in the pursuit of the ‘personal’.

Measuring MOOC communities

The corporate vision of a diverse population of learners is maintained in the promotion of community on Coursera’s website (see fig 37). Significant here is that the idea of community is not defined, but rather measured, using data derived from student participation. These statistics include enrolment numbers, the number of countries from which enrolment derives, the number of discussion forum postings, and time spent active on the platform. Reflecting the Coursera visualisation of the globe discussed in chapter 4, the focus here is overwhelmingly on the magnitude of participation and the reach of the organisation. This representation of community appears to emphasise volume, rather than the characteristics or particulars of participation itself, maintaining the concern for scale and expansion embraced by the principal MOOC platforms. Nevertheless, it seems clear that

Coursera's community page is intended for promotional purposes, including as it does a selection of 'student stories', as discussed in chapter 4 (Coursera, no date b, see fig 20).

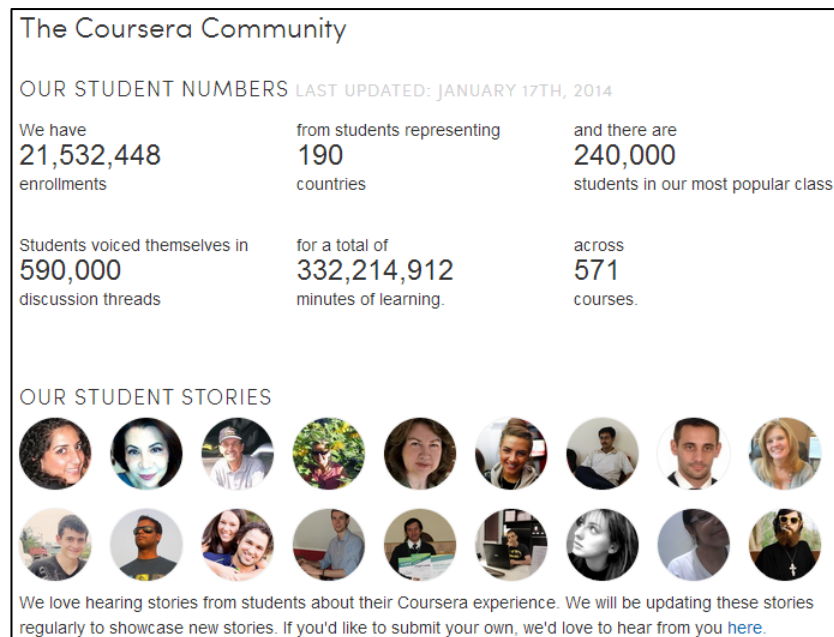


Figure 37: Section of the Coursera Community page from early 2014 displaying statistics for participation and images of students that have contributed accounts their involvement with the organisation

The acknowledgment of 'community' as something significant to MOOC participation manifests in Coursera, edX and Udacity's endorsement of MeetUp.com, a third party web service that allows registrants to coordinate, schedule and indicate interest in local, face-to-face, meetings. Crucially, this is an external service, through which MOOC students independently organise and conduct social activity without necessary central direction from Coursera, edX or Udacity. Alongside providing a platform for arranging meetings, MeetUp.com displays further measurements of MOOC community, also drawing from participant data. Notable in these representations are visualisations of the globe which identify the locations of specific meetings (see fig 38 for the Coursera MeetUp.com page). Once again, the entirety of the world is positioned as the necessary backdrop for MOOC participation. Where the globe is assumed as the foundation for the measurement of community, the implication appears to be that it can manifest everywhere. However, one of the significant differences between the MeetUp.com visualisations of the globe and those discussed in chapter 4 is the representation of multiple and localised communities, as opposed to a universal population of learners. Community is depicted as varied and situated, rather than singular and homogenous. There is less of an emphasis on nation state, focussing instead on the specific geographical locations of face to face meetings, indicated by the red place markers (see fig 38), seeming to portray a spatial ordering that is comprised of

particular sites, distributed localities and clusters of intensity. This MOOC world is not a totality, but a measure of the multiplicity of community groupings within the population of a particular MOOC platform. The displayed 37,434 ‘courserians’ (specific to the Coursera platform) demonstrates that this community service involves only a small proportion of the total number of platform enrollees. Nevertheless, magnitude is prominent once again in the form of numerical representations of the number of community groups, individuals, and cities involved (see fig 38), maintaining expansionism as an integral theme in the portrayal of the MOOC.



Figure 38: Section of the Coursera Meetup website displaying a world map that indicates the location of student-organised face to face meetings

Perhaps of most significance in relation to MeetUp.com is the fact that it is a third party service, supporting the idea that the structure of the MOOC platforms marginalise social interaction in favour of content and assessment, as discussed in chapter 4. However, its inclusion signals a concern for how participation takes place; a concern that has, I will suggest in this chapter, been perceived as increasingly important in the waves of MOOC research that have followed the initial platform offerings. The specific positioning of the link to MeetUp.com may be notable here, Udacity choosing to locate it on their homepage, under the ‘community’ heading (Udacity 2014d), while Coursera provide a default direct link within the menu structure of each course, perhaps implying its direct relevance to specific course activities.



Figure 39: Email from edX promoting the Meetup community and encouraging participants to join

The edX platform took the step of promoting their MeetUp.com communities in a promotional email which encouraged enrollees to seek out and join a local face-to-face meeting (see fig 39). Importantly, this idea is justified by the notion that a community provides the support to keep students motivated and on track with course activities. Such encouragements may be influenced by the findings of Breslow *et al.*, who claim ‘[t]he strongest correlation we found between what we are calling “student background” and achievement was in whether or not the survey respondent “worked offline with anyone on the MITx material”’ (2013, p20).

This highlights a major concern with achievement and retention amongst the foremost MOOC platform providers, a concern that has motivated considerable research around the measurement of participation, which will be examined in the next section. As we have seen in chapter 4, Coursera, edX and Udacity have worked to identify the individual through the design of the platform. However the ‘community’ appears here as something unknown yet valuable, invisible to the data collection practices of their software, and facilitated by a 3rd party service. As such, and following the inclinations to make visible the MOOC world discussed previously, the community must be rendered perceptible and knowable through practices of measurement. Importantly, I suggest that these approaches can be understood as a further example of the expansionism and colonialist inclinations that underpin the principal MOOC organisations. As discussed below, emerging research has tended to quantify participation in a way that not only privileges particular forms of engagement, but also establishes the conditions for the normalising of student activity.

Identifying participants and categorising participation

The following analysis will examine emerging practices of measurement in MOOC research, which are focussed on categorising participant activity and behaviour. I suggest that these approaches tend to narrowly define modes of participation according to predetermined ideas about appropriate educational conduct, founded on the assumption of a humanist subject. As such, modes of participation are already decided by those performing the research, and opportunities to learn from diverse global engagement tend to be lost. Furthermore, these practices of measurement normalise participation by privileging certain behaviours and casting others in deficit to the norm. This reflects the colonialist tendencies discussed in chapter 4, which manifest here as the imposition of certain modes of behaviour over others.

Reflecting the behaviourist orientation of Coursera, edX and Udacity (Rodriguez 2013), emerging research has tended to measure participation in terms of specific kinds of conduct. Student retention in MOOCs has surfaced as a prominent theme, garnering significant media attention (for example Parr 2013a, Marcus 2013, Kolowich 2013a, Rivard 2013b, Rivard 2013d, Daly, 2014, Pretz 2014) and prompting detailed analyses of enrolment and completion data (Jordan 2014, Ho *et al.* 2014, Breslow *et al.* 2013, Perna *et al.* 2013). This research has suggested that less than 10% of those who enrol in the majority of MOOCs complete the course, with ‘a median average of 6.5%’ (Jordan 2014, p150). An earlier survey by the Chronicle of Higher Education published findings that indicated an average completion rate of 7.5% (Kolowich 2013c). Of those who are considered ‘active learners’, completion rates are claimed to be at a median of 10%, although derived from a smaller subset of data and with an acknowledged lack of clarity about how such participation has been defined (Jordan 2014). In contrast to the expressions of magnitude in the Coursera and MeetUp.com community statistics discussed above, these kinds of figures seem to portray the MOOC as an educational event of overwhelming silence, torpor, and indifference, rather than a global phenomenon or vibrant learning population. If the MOOC is considered to be the sum of its participants, it is by these measures drastically unknown, and an education of anonymity and indeterminacy. Such prospects have prompted many to question the value of completion rates as a coherent measure of success in MOOCs (for example Haber 2013, Koller *et al.* 2013, Ho *et al.* 2014, Reich and Ho 2014, Jordan 2014). Faced with a silent, obscure and invisible majority, research has often been directed at identifying participants and categorising modes of participation.

This desire to identify MOOC students emerged from the earliest courses. Fini surveyed CCK08 to ascertain aspects such as gender, age, nationality, mother tongue, occupation and motivation for participation (2009). While primarily concerned with opinions on technology use, this profiling concluded that the course ‘attracted adult, informal learners, who were not concerned about course completion’ (Fini 2009, p1). Such demographic data was also collected from PLENK2010, identifying professional backgrounds and occupations (Kop *et al.* 2011). The age, gender, and professions of MobiMOOC participants were also pursued in subsequent research (Koutropoulos *et al.* 2012). A survey study of participants from the University of Pennsylvania’s Coursera MOOCs suggest students to be ‘predominantly highly-educated and employed, and they are more likely to be men than women, especially in BRICS and other developing countries’ (Christensen *et al.* 2013, p6). The University of Edinburgh’s report on MOOCs claimed similar findings (MOOCs@Edinburgh Group 2013). Breslow *et al.* acknowledge the potential problems in analysing MOOC data from established understandings of the student, and present demographic findings from research on the first edX course, ‘Circuits and Electronics’ (2013). Location, age, sex, education and ‘reasons for enrolling’ are amongst the data collected to profile these participants (Breslow *et al.* 2013), a strategy also undertaken by Ho *et al.* in relation to edX courses (2014). Christensen *et al.* exemplify this fascination with identity: ‘there are no robust, published data that describe who is taking these courses and why they are doing so. As such, we do not yet know how transformative the MOOC phenomenon can or will be’ (Christensen *et al.* 2013, p1). In other words, the potential for disruption in education is considered to only be realised once the unknown cohort of enrollees have been quantified and categorised into discernible individuals. However, the attributes measured in these studies appear to be minimal, and significantly, assumed to be universal in all participants. In attempting to measure ‘who’ the silent majority are, these studies establish and construct the MOOC subject as already located, aged, gendered, and educated.

This emerging body of research demonstrates the anxiety that educators face when presented with the ‘unknown learner’ of the MOOC (Macleod *et al.* 2014). Macleod *et al.* attest to the diversity of massive participation (2014), and a significant tendency in MOOC research has involved attempts to classify and categorise the largely anonymous student population into various modes of participation. This is reflected in the Koller *et al.* consideration of ‘drop-out’ rates, which suggests that ‘discussions of retention within MOOCs must always be considered in the context of student intent in order to have real meaning’ (Koller *et al.* 2013). While Ho *et al.* contend that ‘[t]he diversity of registrants resists singular profiles; registrants

are notable for their differences' (2014, p2), they replace a universal category of 'student' with four classifications: 'only registered', 'only viewed', 'only explored' and 'certified' (2014, p13). Milligan *et al.* adopt a similar approach to the research of the connectivist-informed Change11 MOOC, identifying: 'active participation', 'passive participation', and 'lurking' (2013). Such a focus on 'active' and 'passive' forms of behaviour situates these studies within theories of learning that are grounded in psychologism and behaviourism, clearly positioning the research within a humanist framework. In other words, this is to classify 'predefined subject positions within the common sense of a community' (Lewis and Kahn 2010, p3), and demonstrates the way that modes of participation are assumed, rather than 'discovered' in the routines of measurement.

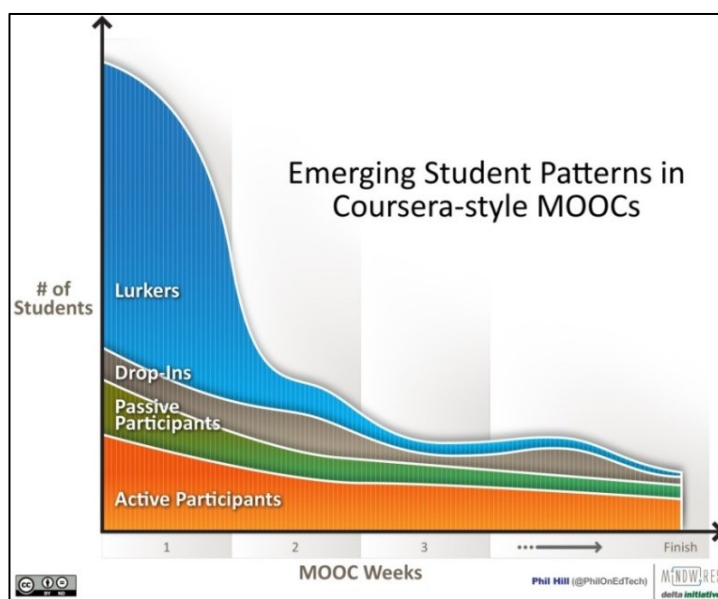


Figure 40: Graphical representation of the participant categories 'lurkers', 'drop-ins', 'passive participants', and 'active participants' (Hill 2013).

Hill suggests similar ways of participating in 'xMOOCs': 'lurkers', 'drop-ins', 'passive participants', and 'active participants' (Hill 2013). Claiming 'lurkers' to be the majority in 'xMOOCs', Hill visualises these categories of participation in the form of a graph (Hill 2008, see fig 40). Although generated from estimated numbers rather than empirical data, this visualisation illustrates the hierarchical ordering of categories of participation, reflected in the studies referred to above (Ho *et al.* 2014, Milligan *et al.* 2013). Normal participation is established at the core, as persistent activity and course completion, while other modes of engagement are only considered as relative to this; as grades of diminishing commitment to the course. This is exemplified by the designation 'only', applied to all but the 'certified' category in the work of Ho *et al.* (2014) referred to above. Therefore, while attempting to

measure difference in MOOC populations, this strategy tends to preserve a predefined form of authentic participation, and render other types of engagement as lesser variants of the norm. Furthermore, the way Hill's visualisation is constructed (see fig 40) also signals the tendency to quantify participation in a manner that maintains the expansionism of the MOOC. The vast wave of blue 'lurkers', and the lesser bands of 'drops ins' and 'passive participants', manifest as territories ripe for colonisation by the genuine mode of enduring student activity. The very method of classification in these studies assumes a deficiency in anything other than persistent activity in the predefined measure of engagement; a flaw that must ultimately be rectified through the improvement and refinement of the MOOC model. This is the further manifestation of the colonising impulse in the MOOC project: the tacit requirement for all forms of educational conduct to be brought into line with the regimes defined by a central minority. Just as 'the monster, as a sublime excess, must be dominated or tamed through colonial force' (Lewis and Kahn 2006, p6), here silence must be subjugated into active participation.

Most significant in this drive to classify the student population is, however, the attempt to rationalise and make visible the unidentified and the invisible of the MOOC. Faced with the irrational silence and apathy of majority non-completion, the overwhelming reaction from researchers has been to mould the data traces of engagement into normalised and coherent modes of participation, such that even the supposed non-engagement of 'lurking' becomes defined, stabilised and legitimised as a category of membership. Participation is ordered according to the intensity of engagement, from a normal 'active' to an abnormal and peripheral loitering. This is precisely the routines of rationalisation identified by Lewis and Kahn, in which the unknown and monstrous in society is rendered merely atypical (2010). In other words, that which fails to fit the model of reason is recast in negative relation to precisely those terms. They suggest that to 'educate is not simply to regain order over the disorderly but to render human that which borders on the animal - to replace the monstrous with the banality of the abnormal' (Lewis and Kahn 2010, p67). Here the invisible and undefined, and thus the irrational and non-human of the MOOC is recast as 'lurking'; a category defined according to its non-standard relationship to the predetermined and reasonable modes of 'active participation'. In attempting to identify and measure the vast silence of MOOC participation, the unknown has simply been replaced with a negative form of active participation. Such a strategy of measurement fails to account for silence in itself, but rather remoulds the unknown into something recognisable, as merely the inverse of activity. This reflects precisely Lewis and Kahn's claim that 'states function to gentrify and

tame the destabilizing power of the monster in order to maintain certain norms and values that enable the community of citizens to recognize one another' (Lewis and Kahn 2010, p25).

Noteworthy in Hill's visualisation is the emphasis on the deterioration of activity (2008, fig 40). This illustration of the MOOC as an event of decline and atrophy is reflected in the 'funnel of participation' proposed by Clow (2013). This idea, derived from marketing and sales theory, maps the widespread awareness of a MOOC as it develops into more consistent and active engagement, involving a steep decline in the numbers participating (Clow 2013). Clow utilises visitor data from Google analytics, as well as registration and activity data from the iSpot, Cloudworks and OpenEd course sites involved in the study, to frame the MOOC as a site of ever-decreasing participation (2013). Visualisations of this data (see fig 41) confirm these 'patterns of steeply-unequal participation and steep, staged drop out' that 'fit the key characteristics of the funnel of participation' (Clow 2013, p3). Notable here is the use of theories from business and advertising to attempt to make sense of the MOOC, naturalising the idea that populations of learners can be understood in similar ways to bodies of consumers, and that such research techniques are deemed appropriate for research in the field of education.

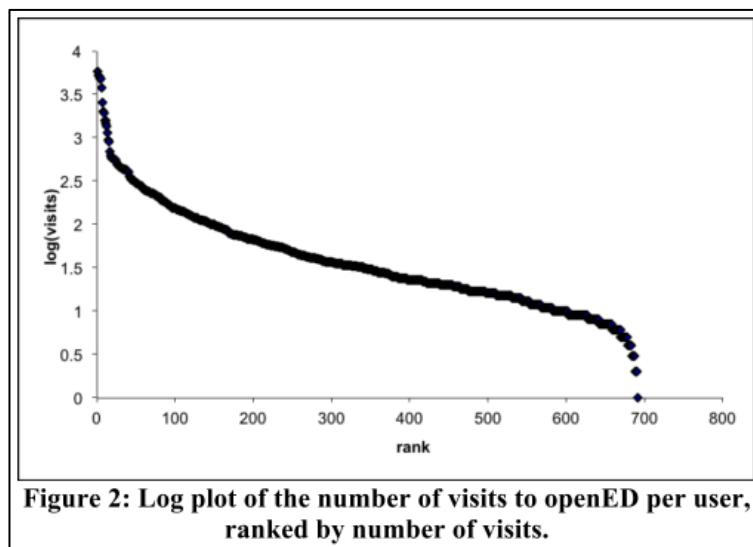


Figure 41: Visualisation of visitor data related to the OpenEd MOOC produced by Clow (2013).

This model of decline is reflected in the conclusions of numerous data-informed MOOC research projects (Fournier *et al.* 2011, Breslow *et al.* 2013, Perna *et al.* 2013, Ho *et al.* 2014). However, while Perna *et al.* conclude that "[e]ngagement" falls off dramatically after first 1-2 weeks', they appear to acknowledge the difficulty of defining and quantifying

the notion of ‘engagement’ with a course (2013). This signals the challenges of classifying participation through data collection and analysis: firstly, that no common explanation of ‘active’ exists across all MOOCs, and secondly, that the processes of measurement and the kinds of data available define the modes of participation themselves. Nevertheless, the pattern of atrophy solidifies the spectrum of normal to abnormal participation, and assist in the making visible and classifying of silence and inactivity. Active involvement in the full duration of communicative activities and assessment tasks is maintained as the core form of MOOC conduct, against which outsider practices of increasing disengagement are measured, mapped and validated. The routines of data collection and analysis are integral to this process. The category ‘lurking’, for example, is produced, not through the presence of particular data, but from the *absence* of certain indicators of activity. Lurking is simply the result of participants not adhering to the specific behaviours being measured. In other words, ‘lurking’ is made visible only in the form of a negative response to data capture and quantification.

This analysis points to significant problems in the way MOOC participation is being measured in these studies. Because a particular form of active engagement is privileged, the measurement of this behaviour becomes the model through which all participation is assessed. The procedures for capturing active participation create the entire range of roles, which are defined according to an increasing dearth of response data. For example, the ‘certified’, ‘only explored’, ‘only viewed’ and ‘only registered’ proposed by Ho *et al.* (2014) are classifications defined by having proportionally less indicators of activity. ‘Only explored’ is all the data apart from that associated with certification, ‘only viewed’ without exploration and certification, and so on. This accumulative model is illustrated in figure 42.

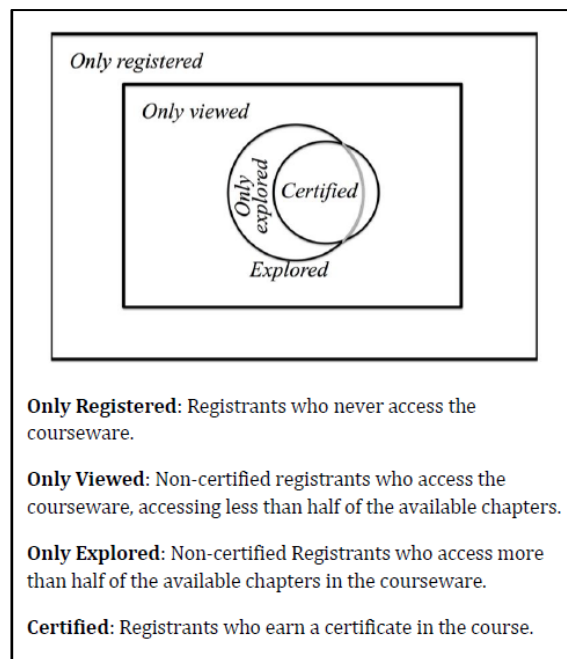
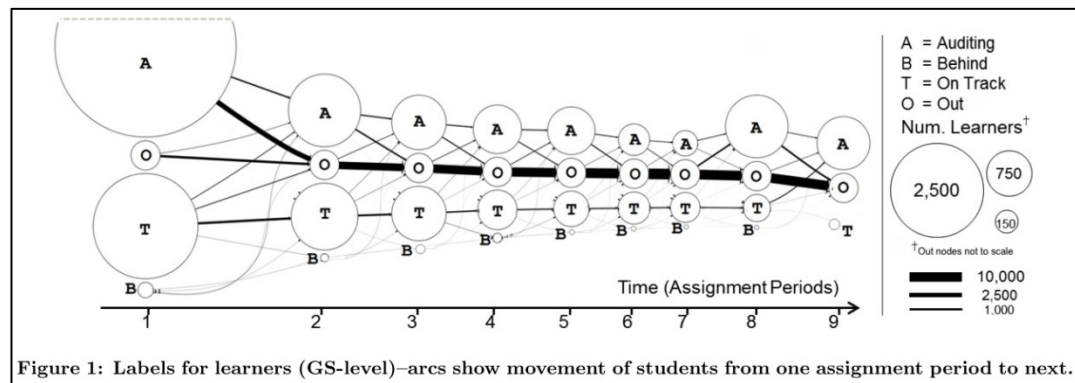


Figure 42: Diagram from Ho *et al.* (2014) illustrating how the four proposed roles are shown to be derived from the same set of data.

While figure 42 visualises the differing proportions of participants, reflecting the previous illustrations of decreasing engagement, it also exposes the ways in which these roles are classified. The structure of this visualisation shows the different modes of participation, not as a graph of distinct bands of behaviour as seen in figure 40, but rather as a total population in which concentric roles are delineated. While these categories are described as mutually exclusive (Ho *et al.* 2014), that is so because of the label ‘only’. ‘Viewing’ requires registration; ‘exploration’ requires ‘viewing’ in addition to registration; and the centre of ‘certification’ requires everything preceding it. This visualisation (fig 42) therefore illustrates most vividly the way that these modes of participation are structurally interrelated, and derived from the same data collection strategy. ‘Exploring’, ‘viewing’, or ‘registering’ are not considered as distinct roles with exclusive characteristics or unique behaviours, but measures that are derived from, and ultimately subservient to, the centre of ‘certification’. This reading might be interpreted as suggesting that this kind of research is not in fact concerned with measuring the different ways people might participate in MOOCs, but merely revealing how many people are not engaging in the normative conduct predefined by the platform designers. This demonstrates precisely how the silent, unknown, and monstrous of MOOC participation is produced as abnormal; as a deviant relation to the normal. Rather than coming to know the divergent and multitudinous populations of the globe, they seem to be cast here as merely a negative reflection of the standard established by the researchers themselves.



Kizilcec *et al.* (2013) provide a nuanced visualisation of the user categories, 'Auditing', 'Behind', 'On Track' and 'Out', visualising student numbers at particular points of assessment, and the transitions between them (see fig 43). The category 'auditing' is important here because it reflects the acceptance and rationalisation of non-participation found in the other studies discussed above. However, rather than 'lurking' which implies underhanded behaviour or sinister intentions, 'auditing' recasts silence and inactivity as 'making sense'. Auditing is the legitimisation of lurking, yet only in the connotations of the term, and the practices of measurement remain largely similar to those studies which identify this behaviour as 'lurking'. Kizilcec *et al.* are keen to claim that no single mode of engagement in MOOCs should be considered more or less valuable (2013), and their visualisation presents the various modes of participation in a way that is not explicitly hierarchical (see fig 43). Nevertheless, just like the studies identified above, it is the very strategies of data collection that predetermine and order the kinds of engagement permitted. MOOC participants in this study are categorised exclusively according to the ways they have interacted with video lectures and assessment activities, reinforcing the idea that watching video content and undertaking formal assessment are the most important elements of the MOOC; the only activities by which to measure participation. It is these gauges which determine the entire range, from the normal 'on track' student to the abnormal category of 'out', such that any type of participation is made relative to video-watching and quiz assessment.

This bond forged between participation and formal assessment is further established in Coursera's dashboard, released at their partners' conference in April 2014 (see fig 44 for an example). Derived from data collected by the platform, participation is categorised as 'enrollee', 'visitor', 'lecture watcher', and 'quizzier'. Once again, this formalises a clear

hierarchy of engagement, in which undertaking assessment in the form of a quiz is the core, authentic mode of participation. Even exclusively watching lectures is considered not quite authentic as no assessment is involved. This is particularly significant given the platform's inclusion of peer assessment functionality. It is unclear how such measures of participation would categorise students who were active in, and completed, a MOOC that didn't make use of video lectures and employed peer assessment rather than automated quizzes.

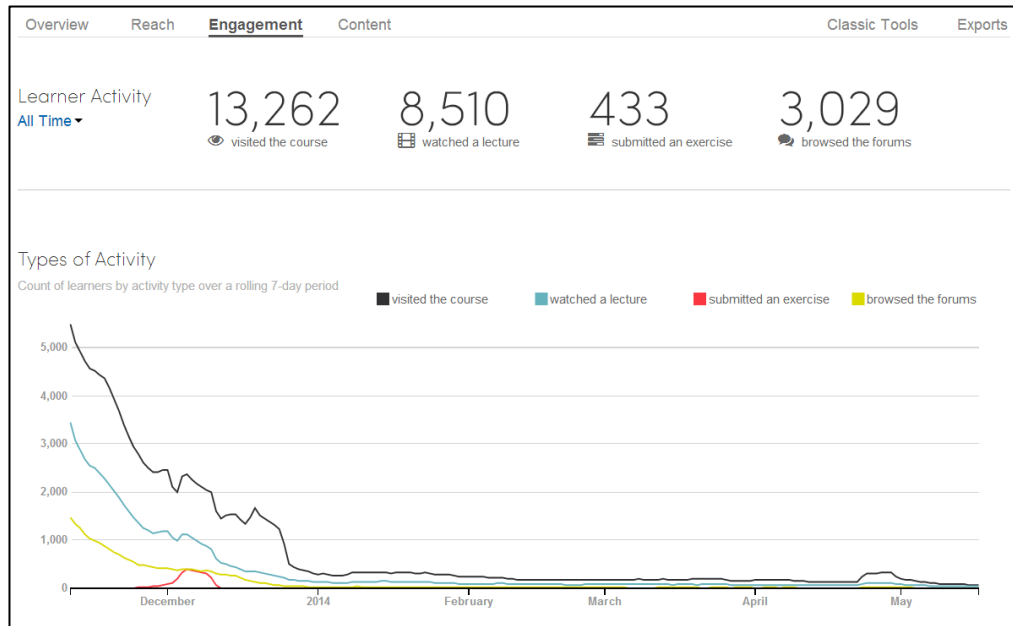
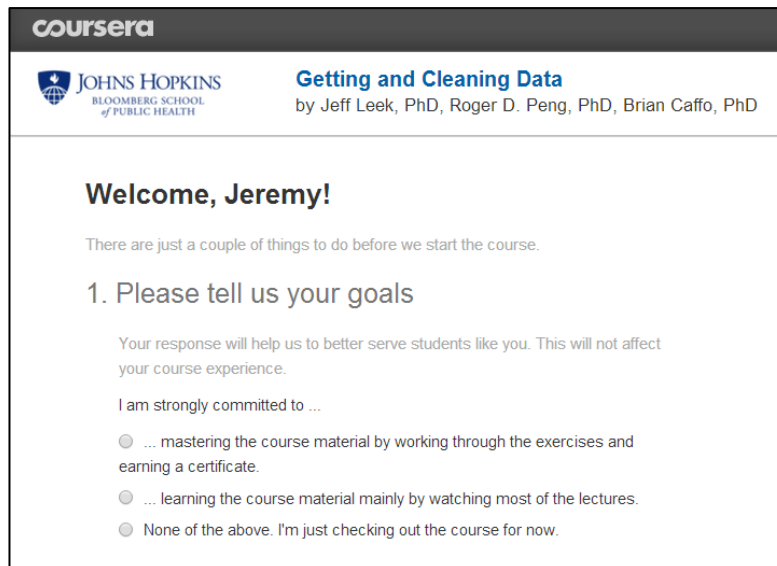


Figure 44: Coursera platform analytics dashboard, depicting statistics from the 'E-learning and Digital Cultures' course.

The further significance of this approach is the way that these modes begin to structure MOOC participation, rather than simply being the assumed outcomes of measurement. In an early example, MobiMOOC *predefined* specific modes of participation as 'Lurking participants', 'Moderately active participants', and 'Memorably active participants' (Koutropoulos *et al.* 2012, MobiMOOC 2014); categories which suggested different forms of engagement for potential students to voluntarily adopt *before* the course is undertaken. Similarly, in early 2014 Coursera introduced a pre-course survey inviting participants to voluntarily specify a form of course engagement (see fig 45). Three options are offered: 'mastering the course material by working through the exercises and earning a certificate', 'learning the course material mainly by watching most of the lectures' or 'none of the above. I'm just checking out the course for now'.



The screenshot shows a Coursera interface for a pre-course survey. At the top, the Coursera logo is on the left, and the course title 'Getting and Cleaning Data' by Jeff Leek, PhD, Roger D. Peng, PhD, Brian Caffo, PhD is on the right. Below this, the Johns Hopkins Bloomberg School of Public Health logo is on the left. The main content area has a heading 'Welcome, Jeremy!' followed by a subtext 'There are just a couple of things to do before we start the course.' The first question is '1. Please tell us your goals'. Below this, a text line says 'Your response will help us to better serve students like you. This will not affect your course experience.' Then, it asks 'I am strongly committed to ...' and provides three radio button options: '... mastering the course material by working through the exercises and earning a certificate.', '... learning the course material mainly by watching most of the lectures.', and 'None of the above. I'm just checking out the course for now.'

Figure 45: Pre-course entry survey from the Coursera platform, requesting participation to select a predefined form of engagement.

The introduction of these categories is undoubtedly an attempt to polish completion figures - such a measure could subsequently be derived only from those selecting the first category, supposedly increasing the likelihood of a larger figure. As suggested by Kolowich:

The rates of completion for students who have given some indication that they plan to do the work is substantially higher. For example, for students who so much as submit the first assignment, the completion rate leaps to 45 percent. (Kolowich 2013a)

Indeed, the results of this survey feed directly into the analytics dashboard (see fig 44), allowing administrators and teachers to analyse course activity according to 'learner commitment levels' (Coursera 2014d). However, the implications of pre-specifying modes of participation are much more profound. Suggesting such narrow forms of engagement at the point of enrolment establishes such modes as the legitimate range of participation, predetermining the kind of experience a participant can expect to have, and potentially influencing subsequent behaviour.

What these trends in research demonstrate is a clear drive to understand the unknown, silent majority of the MOOC. However, in doing so, these studies appear to converge on a desire to categorise narrow sets of learner identities, exemplifying the simultaneous moves of closure that appear to accompany attempts at an 'open' MOOC education. Here the open enrolment policy of the MOOC is deemed problematic because it provides no information about the identity or intention of individuals, necessitating subsequent practices of quantification and categorisation that predetermine and delimit the kind of engagement

participants are permitted to have. The establishment of such roles in the MOOC platforms themselves indicates how such measurements are defining the way future participation will be understood.

Finally for this section, I must emphasise how these research strategies reflect the colonising tendencies discussed in chapter 4. In calling for a future of postcolonial justice Fanon suggests: ‘if we wish to reply to the expectations of the people of Europe, it is no good sending them back a reflection, even an ideal reflection, of their society and their thought’ (2000, p26). Fanon’s point serves well here as a reminder that educational disruption or revolution will not happen if the supposed global populations of the MOOC are simply reflected back in the image of those doing the measuring. The research highlighted here appears, not to discover diverse modes of participation, but merely to echo the assumptions already encoded in the routines of data collection: a rational and autonomous learner founded on the universal humanist subject. Crucially, just as in the visions of the globe, attempts to characterise MOOC participation appear to have far-reaching aspirations. An unknown and silent outside is forbidden, and practices of measurement seek to envelop and domesticate the outlying and distant exterior of the MOOC population. It seems then that the richness and diversity of MOOC populations are lost on a research strategy that appears to resemble a ‘contemporary, information/data driven world of utility, calculation, and measuring/immunization’ (Lewis and Kahn 2010, p111). Practices of colonisation are thus not limited to the marketing of MOOC platforms, but extend into the desire to quantify participation, and much of the research discussed in this chapter is *not* conducted by, or associated with, the corporate MOOC organisations. Forms of engagement that remain unseen by the standardised techniques of quantification are nevertheless tamed; categorised in order to relate to a normative framework of preordained MOOC engagement.

Connectivism and community

Let us reconsider the question of cerebral reality and of the cerebral mass of all humanity, whose connexions must be increased, whose channels must be diversified and whose messages must be re-humanised. (Fanon 2000, p25)

MOOCs influenced by the proposed learning theory of connectivism are often positioned as the alternative to the broadcast pedagogies of Coursera, edX, Udacity and FutureLearn, largely through the perception that they have given more credence to relations between people (McAuley *et al.* 2010, Kop *et al.* 2011, Osvaldo Rodriguez 2012, Saadatmand and

Kumpulainen 2014). The idea of community is often central to discussions of connectivism, referring to groups of participants who engage in practices of learning through the formation of networks (Kop and Hill 2008). It is the implications of these ideas that will be highlighted here: the conventions of community and the individualism of the network. The underlying point here is that the attempts to define connectivism have focussed on the proposal of a new theory of learning (Siemens 2005, 2006a 2006b, Downes 2005, 2007, Anderson and Dron 2011), yet this work has declined to articulate a coherent theory of the subject. Therefore, as we shall see below, the persistent attempts to foreground notions of ‘community’ and ‘network’ end up normalising forms of participation and assuming a tacit humanist subject at the core of connectivist activity. As such, the supposed alternative offered by the connectivist-informed MOOCs will be shown to reflect the tendency to predetermine particular kinds of participation, as discussed previously. This approach maintains the arrangement in which certain modes of engagement are permitted, while difference is not only prohibited, but identified for normalisation. Tschofen and Mackness have been critical of such tendencies, suggesting ‘efforts to seek conclusive or limiting definitions and roles for individuals within connectivist theory are potentially, and perhaps ironically, counterproductive to the furtherance of connectivist learning’ (2012, p138). Nevertheless, my intention is not to use such a critique to ultimately advocate connectivism, but rather to expose a core humanism, and demonstrate that connectivist activity ultimately limits educational potentials through the preservation of the rational and autonomous subject, and creates the very conditions of exclusion within a supposedly ‘open’ educational format.

The first thing to note is the emphasis on active participation in the connectivist-informed MOOC (McAuley *et al.* 2010, Mackness *et al.* 2010, Kop *et al.* 2011, Koutropoulos *et al.* 2012, Stewart 2013). However, rather than considering legitimate action in terms of engagement with course assessment tasks, advocates of connectivism focus on the relationships *between individuals* involved in a MOOC. Communal interaction is the measure of success, rather than the completion of individualised assessments. Moreover, the shape of this MOOC is not simply a globe of universal enrolment, but rather a network of nodes and connections. This more nuanced arrangement has motivated a theoretical approach to participation that is significantly less present in work associated with the MOOC platforms. Nevertheless, this does not mean that the measurement of participation has been absent, and, as shall be illustrated, the quantification of MOOC engagement maintains a powerful influence over the way these courses are understood.

Lurking and the tyranny of participation

Preceding the high-profile rise of the MOOC platforms, the issue of inactivity, silence and non-participation has been a prominent theme in connectivist-informed offerings (Osvaldo Rodriguez 2012, Kop and Hill 2008). Of particular interest here is the response to the idea of 'lurking', a frequent topic during the Change11 MOOC and a prominent theme in associated literature (Fournier *et al.* 2011, Mackness *et al.* 2010, Koutropoulos *et al.* 2012, Haggard 2013). Of particular prominence in the discussion of lurking has been a blog post by Siemens, in which it is stated that 'there is never a good time to be a lurker.

Lurking=taking' (2010). This position is articulated around the idea that the 'network' of the connectivist MOOC is predicated on the active participation of the elements from which it is comprised. Siemens states that 'networks function on a gift-economy basis. We're involved in a type of social contract where we share freely with others and, in turn, we receive freely from them' (2010). This concept of the network is given foundational significance, and the activities of participation, such as those defined in Change11 MOOC: aggregate, remix, repurpose and feed forward (Downes *et al.* 2011), are considered to be the processes of network formation, and thus, learning itself. Crucially, far from being an analogy or a metaphor, Siemens claims that 'the learning is the network' (2006). Therefore, the argument against lurking centres on the notion that learning requires an active network of relations between people, and 'the value that all learners can offer each other' (Siemens 2010). The implication of such a position is that non-participation implies a detrimental learning experience for the entire network, and thus 'learning' itself. To lurk is to withhold the potential benefit of additional active relations. Thus, non-participation is deemed not only disadvantageous to the individual doing the lurking, but also, and perhaps more importantly, to the wider community of learners. In other words, silence is cast as a monstrous act of 'transgressing [the] sacred and profane boundaries of the community' (Lewis and Kahn 2010, p1). However, these claims of communitarianism – claims that will be challenged in the subsequent section – enforce certain forms of participation that regulate community practice. This mirrors the arrangement discussed previously, in which an inner core of accepted participation is differentiated from an outside of difference and unconventionality.

It might be contended that such a view of participation directly opposes the notions of openness and autonomy promoted elsewhere in connectivist literature. In particular, where the MOOC promotes a fundamental individual responsibility for learning (Cormier *et al.* 2010), this notion of necessary participation appears to create a paradox: one is entirely

responsible for one's own learning, however one cannot learn without others, and is incapable of succeeding alone. On the opposing side of the debate, the defenders of lurking promote a notion of autonomy that privileges the lack of restrictions imposed by others. Such independence is hailed as an unquestionable element of the MOOC, in which it is asserted: 'a key principle is that we have the choice of how connected, open, interactive or participative we want to be. We can therefore choose to lurk' (Mackness *et al.* 2010). In this study of CCK08, Mackness *et al.* note how many participants retreated to smaller groups rather than exposing themselves to the extent of the network (2010), calling into question the assumption of universal engagement. This stance reflects work in the area of networked learning which is critical of the apparent trends towards enforced participation in collaborative online education (Ferreday and Hodgson 2008). Ferreday and Hodgson suggest a rise in popularity of the idea of participation, perhaps lingering from the heritage of critical pedagogy, such that networked learning has 'almost become ubiquitous and is frequently seen as unquestionably desirable' (2008, p640). This highlights the way in which some approaches to the connectivist-informed MOOCs naturalise cohesive participation as the legitimate form of engagement and prohibit lurking as behaviour in opposition to learning.

Nevertheless, studies which have questioned compulsory participation have tended to retain the idea as a normative framework and a privileged mode of engagement (Preece *et al.* 2004, Beaudoin 2002, Gulati 2004, Gulati 2008). Rather than rejecting lurking entirely, the stance of legitimate peripheral participation (Lave and Wenger 1991) tends to be adopted in the connectivist approach to the MOOC. Waite *et al.* propose just such a tactic for organising and facilitating MOOCs, in which strategies for engaging 'experts' in the initiation of novice participants is recommended (2013). In analysing participation in CCK08, Mackness *et al.* make the following conjectures about inactive learners:

There are at least two possible explanations: i) they were getting a free ride (free as in "beer"), or ii) they were demonstrating "novice" behaviour; many novices "lurk" until they feel confident enough to expose their views in "public" forums". (Mackness *et al.* 2010, p270)

The chosen explanations for inactivity and silence here are highly revealing. The first evokes the unreasonable, perhaps the absurd, while the second legitimises lurking by suggesting that it is a temporary form of admittance into the more formal routines of community participation, rather than an as valid form of engagement itself. This re-establishes the routine of immunization, which 'maintains the health of the community

through a critical subtraction of an excess' (Lewis and Kahn 2010, p47). This subtraction takes the form of excising silence by incentivising lurkers towards the established practices of active engagement. Once again silence is recast as non-participation; a negative relation that presumes the need to overcome its undesirability and conform to the natural state of cohesive community participation. Thus, while seeming to accommodate lurking and embrace an unrestricted and liberal approach to education, this stance tends to normalise difference and retain a core authoritative practice. It is in this way that the debates about active participation and lurking reveal themselves to be consistent rather than opposed; consistent in the requirement for lurking as the banned conduct by which community is explained. As Lewis and Kahn suggest:

To give into the monstrous is nothing less than a betrayal of the community and yet, existence without the monster would be tantamount to a disintegration of the boundaries that define community in the first place. (2010, p7)

In other words, the oppositional logic of participation | non-participation in connectivism constitutes an arrangement in which one behaviour is defined according to its negative relation to the other. The 'lurking' outsider is a necessary transgression in order to be able to define and delineate 'active' community. Legitimate peripheral participation is simply the permitted contravention, such that a rational and active community participant can be produced. That is to say, 'civilized community is only recognizable as such through a return, mediated by the struggle to overcome the barbarism of the monstrous' (Lewis and Kahn 2010, p7).

The requirement for stability and order in the way that participation is conducted is also apparent in analyses of the connectivist-informed MOOCs. Mackness *et al.* suggest, 'the larger the course, the more potential for interaction to degenerate into interference and noise' (2010, p272). This is significant because it reveals that it is not just silence which is banned by the connectivist community, but, more accurately, irrational behaviour, within which both silence and noise are situated. This idea that the MOOC degenerates because of 'interference' and 'noise' is based on a privileging of the sensible, predefined habits of the community, and the unwillingness to engage in activity which is not recognisable as such. Interference and noise are the interpretations of activity that doesn't immediately 'make sense'. This reflects the idea that difference must be 'exorcized in order to sustain the boundaries of the superstitious and anthropocentric community' (Lewis and Kahn 2010, p47). In this way, modes of engagement that refuse the communicative regimes of the

connectivist community are disregarded. In discussing networked learning, Ryberg *et al.* 2012 privilege 'groups' as the 'places to make sense of the diversity of experiences and resources' (2012, p54). However, this 'making sense', I suggest, identifies very precisely how the community functions to excise irrationality and instil a reasonable interior. 'Making sense' is a process that translates the radical differences of MOOC populations into known quantities. Coming to 'know' participation is thus a bringing under control and a colonisation of alterity, reflecting the epistemic force of humanism discussed in chapter 4.

Furthermore, the strategy of abnormalising lurking is embroiled in practices of measurement that reflect those discussed in the previous section on research. In order to be counted as an active participant, one must engage in activities that can be observed and recognised. Thus when Siemens suggests that 'even when we are newcomers in a network or community, we should be creating and sharing our growing understanding', and that 'we can better get our footing in new topics by sharing our development' (Siemens 2010), this might also be perceived as a call to make visible the practices of community initiation. Network participation appears to be framed here as the admission of partial and incomplete understanding; an 'opening up', in which the individual must declare the state of their learning to the public gaze of the network. To become familiar with community customs in a way that is invisible to others is forbidden, and participants are required to disclose their activities as necessarily insufficient. One must enact the role of deficient newcomer in order to be recognised as a valid community member. This stance is bolstered by the foundational model of the network in connectivism: to be visible and traceable increases the reach and value of the network. To be *in* the MOOC is what is fundamentally important; either as the enrolment and successful completion prized in the centralised platform model, or the active communication and networking emphasised by the connectivist approach. Here we see the fundamental modes of inclusion and exclusion that permeate the MOOC, and that are conditioned by the assumption of a humanist subject as the underlying justification for education.

The case of lurking appears to have divided both connectivist theorists and MOOC participants. While Downes contends that 'open' in the context of the MOOC means 'being able to watch' (2012a), Siemens has overtly contested the idea of non-participation, claiming that 'being connected, without creating and contributing, is a self-focused, self-centered state' (2010). Thus, the debate concerning lurking has been formulated in terms of the obligation to participate and the freedom to lurk, positions which appear to be underpinned

by a privileging of either the community or the individual. However, despite what appears to be an overt distinction, a closer inspection of the discussions around lurking reveals that both the promotion of autonomy and the privileging of the collective tend to normalise towards the humanist subject. Furthermore, a focus on active and passive behaviour appears to mirror the behaviourist orientation apparent in the strategies of measurement discussed previously. This has implications for the theory of connectivism itself, which is suggested to move beyond behaviourism (Siemens 2005, Anderson, and Dron 2011). I suggest that this demonstrates the lack of a coherent theory of the subject within connectivist literature. One way forward might be to engage with the theory of posthumanism I have articulated in chapter 2, in which the productive and agential role of the sociomaterial is acknowledged. Here, I have described how the identification of lurking contributes to the construction of the subject by normalising participation. As a consequence of not fully engaging with a theory of the subject, the attempts to define community habitually withdraw to an emphasis on the autonomous individual, typically with the articulation of the ‘Personal Learning Network’.

The Personal Learning Network

The following analysis will examine the ‘Personal Learning Network’ (PLN) in order to demonstrate the orthodox humanism that underpins particular approaches in the connectivist project. Following Callon and Law’s suggestion that ‘talk of networks tends to fix things and imply predictable trajectories’ (2004, p8), I will suggest that the PLN fixes a rational and autonomous individual as the foundation of the network, significantly limiting the possibilities for alteration and change and creating a fundamental exclusion. This section of analysis will also draw upon ANT as an alternative conception of the network. I will suggest that work in this area, while not entirely unproblematic, provides a much more nuanced perspective on the relational arrangements, particularly with respect to the non-human. As shall be described, the privileging of the ‘personal’ in the PLN assumes a consistent and unified ‘self’, which through the pursuit of individual interest supports the wider community formation. However, I will show that this configuration is based on the rejection of the impersonal, where ‘the foreign and familiar is misplaced, and our interior alterity is sacrificed in order to achieve a false presence or identity that substantiates the formation of a community predicated on mutual belonging’ (Lewis and Kahn 2010, p11). In other words, this can be understood as a form of immunization against one’s own internal contradictions, where the establishment of a false humanist subject serves to validate and maintain a notion of community through the supposition of unproblematic communication and egalitarian connection.

A definitive position on connectivism is difficult to ascertain, particularly given the broad range of material distributed on the web outside of peer-reviewed academic publication (Ryberg *et al.* 2012). Therefore, any critique must necessarily be selective in its choice of material to analyse. Nevertheless, I suggest that a form of individualism emerges as a powerful underpinning ethos in connectivist theory. This is an important arrangement to highlight, given the emphasis and authority given to the idea of the network in the primary connectivist literature (Siemens 2005, 2006; Downes 2005; McAuley *et al.* 2010), and the suggestion that connectivism attempts to shift the educational focus away from dialogue and community towards autonomous networks (Ryberg *et al.* 2012). The case against humanistic individualism is perhaps most notable in the often-cited claim that ‘[I]earning may reside in non-human appliances’²⁵ (Siemens 2005, p4). However, Siemens reasserts the rational humanist individual elsewhere in discussions of participation, significantly attributing the benefits of networked association to a foundational human agent: ‘the rise of the individual creates the capacity for collaboration, socialization, and “doing things together”’ (2006, p72). Therefore, ‘[w]hat is at stake is not simply community but rather a *human* community’ (Lewis and Kahn 2010, p68 emphasis original). Moreover, some interpret connectivism as being most profound and valuable when considered to be a framework for the development of self-realisation (Tschofen and Mackness 2012). Significantly, Ryberg *et al.* consider connectivism to follow the individualist epistemology of a socio-constructivist perspective, rather than the broader cognitive systems associated with a socio-cultural framework (2012). This challenges the notion that the network is the foundational principle of connectivism.

While Downes has proposed that, in connectivism ‘[c]onnections form naturally, through a process of association, and are not “constructed” through some sort of intentional action’ (2007), he elsewhere contends ‘[i]f you're not motivated, then *you're not in the MOOC*’ (Downes 2012a, emphasis original), appearing to place human intention at the very core of the connectivist project. In a similarly unclear position, Siemens states that ‘connectivism begins with the individual’, while also claiming ‘learners need to be network-directed, not self-directed’ (2011). Such unclear positions too often default to a foundation of an autonomous individual, and this is most prominent in discussions of the PLN, or ‘PLE’

²⁵ Such a claim might be misinterpreted for suggesting a posthuman orientation in the connectivist theory. Where the ‘externalization of our knowledge’ (Siemens 2006b, p11) is proposed, it is done so in a way that maintains the humanist subject. Reflecting transhumanism, the notion of cognitive offload in connectivism is simply the means to cope with information overload (Siemens 2006), allowing a core and authentic individual to maintain rational superiority and become more human.

(Personal Learning *Environment*), often viewed as the principal way of engaging in MOOCs (Kop *et al.* 2011, Osvaldo Rodriguez 2012). ‘Personal Learning Environments Networks and Knowledge’ (PLENK2010) was a MOOC dedicated to this principle. Research has been critical of this model, both Weller (2007) and Dirckinck-Holmfeld and Jones (2009) suggesting that the PLE threatens the shared experience of a course, creates a lack of exposure to difference, entails privacy implications in its data collection strategies, and privileges content over communication (Ryberg *et al.* 2012). Ryberg *et al.* also question whether a PLE might jeopardise values such as ‘e-quality, inclusion, critical reflexivity and relational dialogue’ (2012, p47). The purpose of this section, however, is to highlight the establishing of a humanist-informed, rational and autonomous subject at the core of personalised network arrangement. The exacting arrangement of this ‘self-directed’ approach to MOOC participation is described succinctly in the YouTube video ‘Success in a MOOC’ (Cormier 2010b, see fig 46), intended to provide guidance about how one should participate in such courses. While the video acknowledges that what it proposes may be only one way to approach success a MOOC, it is significant that its five step strategy is arranged around the individual, so that the course itself can be utilised to maximise personal development.



Figure 46: Image from YouTube video ‘Success in a MOOC’ depicting the steps: orient, declare, network, and cluster (Cormier 2010b).

While step 1, ‘orient’ specifies the need to locate and document important course information, step 2 begins to cement the individual at the source of the ensuing personal network. ‘Declare’ indicates the requirement for participants to announce themselves by creating and publishing some form of web presence, such as a blog. This reflects the

requirement to be visible and accountable in the MOOC, as described previously. Significantly, such a declaration is construed to be inadequate in itself, without the third stage of actively communicating with other participants in order to form a 'network' of relations with others. What is stressed in this notion is that the network only results from an individual's independent effort in making contacts and pursuing interaction with other participants. Furthermore, the formation of such a network is declared to be the central reason for participating in a MOOC, as opposed to viewing specific content or completing assessment activities. Personalisation is intensified in the subsequent stage of 'cluster', in which the participant is encouraged to direct contact and communication towards other participants that share similar interests or approaches. The final 'focus' stage involves participants utilising their newly acquired personal network to achieve a specific and individually-identified learning outcome.

Two significant structural arrangements appear to be happening here. Firstly, the idea of the network in this view of the MOOC is being expressed as the intentional product of individual human agency, rather than a pre-existing set of relations, or indeed a mixture of the two. This is, I suggest, a fundamental and irreconcilable difference between connectivism and ANT. In a comparison between the two concepts, Bell highlights the normative inclinations of connectivism, which she contrasts with the purely descriptive offerings of ANT (2010). Bell also claims 'ANT is presented through rich empirical stories of networks and alliances building and fragmenting, whereas Connectivism is argued from referent work, and in distinction to previous theories' (2010, p531).

I suggest, however, that the distinction is much more profound. For ANT, '[n]othing is given or anterior, including 'the human', 'the social', 'subjectivity', 'mind', 'the local', 'structures' and other categories common in educational analyses (Fenwick and Edwards 2011, p1). The autonomous individual is thus produced through networked relations, rather than pre-existing as the originator of the arrangement. Distinctions between the human and nonhuman, the social and natural, are considered effects not foundations (Fenwick and Edwards 2010), thus constituting a radically different orientation from that proposed in the PLN. As Fenwick and Edwards succinctly describe, rather than the rational decisions of an individual, it is the process of *translation* that leads to the network in ANT (2010). This complex process is described in terms of nodes working upon other nodes to alter them into the functioning or resonance of a particular network, thus producing a non-deterministic arrangement (Fenwick and Edwards 2010). Agency does not come from a pivotal human

decision-maker, but is rather distributed amongst the network of humans and non-humans. In other words, agency is structure, and structure is agency (Fenwick and Edwards 2010). This brings into consideration the materiality of the networks that connectivism involves itself in, and frames them as constitutive actors in a sociomaterial process, rather than instruments for mastery by the humanist subject. The material dimensions overlooked by connectivist theory present a significant area for future research, as will be identified in chapter 8.

In contrast, the PLN only comes to be as the result of deliberate human communication, and is comprised exclusively of these connections. Given the equivalence of ‘network’ and ‘learning’ in connectivist theory discussed previously, this situates the process entirely within rational and intentional human agency. This reflects ‘the anthropocentric assurances of human superiority, rationality, certainty, autonomy, and self-awareness that found the ontological purity of the community’ (Lewis and Kahn 2010, p34).

Secondly, the network is not only produced through the deliberate action of an individual, but its very purpose is designated as serving the interests of the person constructing it. This might be understood in terms of the ‘immunizing logics that exterminate the stranger/monster in the name of the Same’ (Lewis and Kahn 2010, p36). In other words, the personal homogenises connections according to the false unity of the humanist subject. Furthermore, this appears to imply a notion of community in which individual objectives and desires are primary, and the collective exists to serve the personal needs of each member. In this way, the PLN seems to reinforce the idea of MOOC education as self-determining and self-centred endeavour.

Despite the potentially distributed and amorphous web spaces in connectivist MOOCs, the idea of the PLN structures the entire course around the assumption of a self-directing humanist subject. It differs from the model of centralised platform because each personal network is supposedly bespoke, however it is consistent with other MOOC arrangements in the sense that the individual participant is both the foundation and the purpose of the course structure. Therefore, regardless of the difference in instructivist and constructivist pedagogical strategies suggested to underpin the ‘cMOOC’ and ‘xMOOC’ approaches (Stewart 2013), both maintain a humanist concern for the autonomy and authentic identity of the individual as the basis for participation. However, even more so than the platform model, the personal learning network relies on the idea of an authentic individual identity to

drive the formation of connections and the personalisation of information flows (Kop *et al.* 2011, Tschofen and Mackness 2012). While the Coursera, edX, Udacity and FutureLearn platform designs appear to assume a universal rationality in their participants, the connectivist-informed approach seems to require individuals with unique identities, the characteristics of which define the structure of the personalised course space. This bolsters a relational process which tends to maintain, and refine, the humanist subject. The network connections made in the ‘cluster’ and ‘network’ stages constitute an intensification of predetermined areas of interest; a process which distils that presumed to be the ‘personal’. Rather than constituting openings, the PLN can thus be perceived as the closing down of relations of difference and the reduction of connections that oppose or contrast the assumed core identity of the individual.

The concept of the anthropological machine can help us further understand the way in which the PLN works to sustain a humanist subject at the foundation of the connectivist MOOC. For Lewis and Kahn the anthropological machine ‘constructs and maintains the superiority of the human by attempting to gain mastery over the divide between the human and the animal’ (2010, p48). In the context of the PLN, we can understand this divide between the human and the animal as the boundary between a self-directing, autonomous learner, and an irrational, contingent other. That is to say, the divide between a humanist subject in conscious control of their learning activity, and that assumed not to be of the ‘self’; the unreasonable, senseless and absurd, and also the non-human, materiality of the network. The attempt to gain mastery over such a division manifests in the stages of network, cluster and focus, which can be understood to *produce* the personal, rather than an authentic identity existing before the relation. These connections serve to maintain the absent core of identity through the persistent affirmation of rational self-direction, and the continual rejection of that assumed to be not decided upon by the ‘self’. In this way, the stages of the PLN function as an ever-closing hinge, sealing in the personal at the expense of the public. Thus, networking, clustering and focussing function to (re)establish the boundary of the autonomous individual, preserving the authority of the subject, and excluding potential relations with an irrational and nonsensical outside. However, that assumed to be the personal needs to be continually re-inscribed through the identification of connections of similarity, and the precise point at which the subject ceases and the impersonal, contingent, connections of the network begin remains indeterminate.

The importance of this analysis lies in highlighting the way in which MOOC participation is conceived in this connectivist-informed approach. The extent to which such a mode of participation might be considered ‘open’ becomes, I suggest, highly questionable. The concept of the anthropological machine provides a way of perceiving ‘personalisation’ as a continual closing down of opportunities for difference through the procedural privileging of rationality and self-direction. Thus a fundamental exclusion structures the conduct of the learning subject in the MOOC, limiting the kinds of relations one might enter into. It is a process which sacrifices the potentially irrational, non-human and monstrous of education, ideas I will return to in chapter 7. The PLN becomes a machine of limitation precisely because of the assumption of an authentic, self-present identity as the core driver of the network. Participation thus becomes the development of the self, or ‘self-realisation’ (Tschofen and Mackness 2012), a process which can only serve to purify and distil a self that was never there.

Individualism in the connectivist MOOC

Despite the emphasis on open connections, information flows and communities (Kop *et al.* 2011), the foundational structure of the *personal* network anchors the individual as both the source and product of the connectivist-informed MOOC. Rather than placing collective community goals at the heart of MOOC participation, the individual is situated as the beginning and the end of the educational event. The purpose of the community is revealed succinctly by McAuley *et al.*

The large scale of the community, from several hundred to several thousand participants, maximizes the possibility that the “long tail” effect will enable someone with even the most esoteric interests within the overall focus of the MOOC to find people with whom to share and collaborate. (McAuley *et al.* 2010, p6)

In other words, the diversity of individuals that results from a large community means that communal responsibility is not required. The individual can remain tightly focussed on personal interests because another participant with similar interests is statistically likely to also be present within the enlarged network. Ryberg *et al.* have questioned the simplicity of this circular model (2012), in which the enhancement of individual capacity implies the enrichment of the network, which is in turn then a more valuable resource for the individual. However, what remains significantly unclear is just how the benefits of diversity are realised in a system driven by a rational and autonomous agent who persistently seeks the ‘personal’. Ryberg *et al.* also note the inclination to systematise dialogue in connectivism; seeming to

disregard the complexities and uncertainties that might derive from discrepancy and disagreement (2012). In this way, the autonomy promoted by connectivism appears to claim, not just freedom from institutional orthodoxies, but also from 'any form of organisation or dependency between learners' (Ryberg *et al.* 2012, p52). Nevertheless, as has been argued previously, this is an 'autonomy' that requires specific predetermined routines of active participation.

Making the position on individualism even clearer, Siemens calls for 'connective' rather than 'collective' intelligence, justified on the grounds that the latter 'results in an over-writing of individual identity' (Siemens 2008 para 3). It is this identity, with an autonomous set of capacities, which is required as the driving agent of the PLN. In a less prescriptive consideration of MOOC participation, Downes differentiates 'groups' from 'networks', critiquing the former as instilling normative practices, and hailing the diversity of the network as providing the means to avoid this regulation (2007). Such a notion is maintained by Tschofen and Mackness (2012). These perspectives on connectivism might be considered to support the critique of community offered in this chapter, were it not for the insistence on autonomy and personalisation as the foundational impetus for diversity. In other words the 'relatively radical individualist focus' of connectivism (Ryberg *et al.* 2012, p52).

This orientation firmly situates the connectivist MOOC project within the domains of a humanist project. It is the assumed authenticity of the subject that rests as the very foundation, not only of MOOC participation, but also of the connectivist network. The significance of this stance is that the connectivist approach to MOOC participation tends towards practices of purification, limitation and exclusion. While supposing to offer diversity, the network of the connectivist MOOC serves to maintain and refine a rational humanist subject by situating potential connections as the product of an autonomous and self-directing human agent. In this way, diversity bolsters the individual, rather than exposing it to contamination and change, reflecting 'the fundamental dialectic of immunization that is always predicated on a sovereign decision over life' (Lewis and Kahn 2010, p113). It is precisely from this perspective that MOOCs have been suggested to foster self-determination and 'the development of personal potential' (Tschofen and Mackness 2012, p139). However, what is masked in this process is the fundamental exclusion predicated on the humanist subject. One can only participate within such 'self-determination' in prescribed ways, structured around the routines of the learning subject.

Conclusions

In this chapter I have analysed the ways that MOOC participation has been measured in emerging research, and anticipated through the proposed learning theory of connectivism. Concerns over retention have motivated research which seeks to uncover modes of participation; however these approaches have been largely underpinned by a tacit adherence to the humanist subject in the form of a rational and autonomous ‘active’ learner. This can be understood as a move away from *assuming* a world of universal participation towards attempting to *measure* it, perhaps motivated by student behaviour not conforming to expectation. While clearly of major concern to advocates of the MOOC and the educational community in general, I have suggested that ideas about the supposed silence and apathy encountered during these courses tends to be constructed by the ways participation is measured and identified. Crucially, I have shown how both behaviourist-inclined research and the more socially focussed connectivist MOOCs tend to predefine and normalise modes of participation, and suggested these processes to be grounded in a humanist framework of rational conduct, authentic identity and self-realisation. Rather than embracing difference, classifications of participation and notions of community tend to preserve the humanist subject, thus constructing a fundamental prohibition of difference. In the supposedly ‘open’ education of the MOOC, such standardisation of conduct manifests as a profound limitation on the ways we can understand global involvement in the MOOC.

I have shown how the scaled broadcast of the MOOC is reflected in Coursera’s considerations of ‘community’ which emphasises magnitude. The endorsement of Meetup.com as a third party service shows that community is marginalised by MOOC providers, although there is some acknowledgement of value. The use of images of maps here signals *communities*; multiple and localised, rather than a single universal population.

I have demonstrated how attempts at measuring MOOC participation limit the understanding of MOOC engagement through the narrow categorisations of identity and behaviour. I showed how these studies tended to preserve an authentic form of predetermined ‘active participation’, and abnormalise other forms of engagement. This manifests as a legitimising of deviant behaviour, rendering the unknown visible, and thus establishing a further colonising manoeuvre that seeks to domesticate the far reaches of potential MOOC engagement. I also demonstrated how this process was integral to the data collection method, which was only able to measure the category ‘lurking’ as the absence of activity,

thus defining this behaviour through a negative relation to accepted participation. Furthermore, these measurements often mapped behaviour in relation to assessment, privileging and solidifying particular ideas about how MOOC participation can be understood. Significantly, I have shown how these roles are becoming established in the MOOC platform itself, potentially influencing future conduct, and limiting how participation can be understood.

The second analysis section examined participation in connectivist-informed MOOCs, suggesting an emphasis on dialogue over interactions with content. I examined how ‘lurking’ was also a common theme in discussions around connectivist MOOCs, with prominent theorists appearing to suggest the necessity of active participation and rejecting an entitlement to be inactive. Where lurking was accepted, it was shown to reflect concepts of legitimate peripheral participation that mirror the very same practices of abnormalisation identified previously. Rather than being challenged, active participation appears to be normalised as the supreme state of learning, while lurking is framed as a behaviour that must ultimately be overcome. This reflects the suggestion that ‘the only way for the community to maintain its “purity” (to keep its hands clean) is to legitimate an internal exclusion’ (Lewis and Kahn 2010, p27). I have also suggested that the demand to exhibit lurking in the connectivist model manifests as a practice of taming an external, irrational and unknown response to the MOOC. Silence is banned from the connectivist community, and what is considered to be outside of standardised practice must be rendered visible as a non-standard initiation. The potential of radically different non-human and non-subjective approaches to education are thus replaced with practices that can be visualised in relation to the normal. I also discussed how the requirement to be active in connectivism manifested as a visibility of data, in a similar vein to the concerns with participation measurement. In these ways, I have shown how adherence to the humanist subject tends to produce a community that *normalises*, rather than *engages with* difference. Humanism therefore sets foundational limits on the kind of education that can take place.

While connectivist interpretations may have provided a much more nuanced and contextual consideration of MOOC participation compared to the assumption of egalitarian world-wide access in the corporate promotion discussed in the previous chapter, I have shown them to default to a problematic notion of community that only accepts particular predefined behaviours. Such modes of participation create an ‘inside’ and an ‘outside’, premised on a foundational division between accepted and banned behaviour established around the

framework of the humanist subject. This closes down the possibilities for learning experiences that are activated through exposure to difference, and limits the sense in which connectivism can be considered to constitute an ‘open’ education.

In the analysis of the Personal Learning Network (PLN) I have shown how this foundational connectivist model is underpinned by the idea of a rational and autonomous human subject, which drives the formation of connections according to an agenda of personalisation and self-realisation. Ultimately, the PLN exemplifies the personal orchestration of education prevalent in connectivism, which situates the assumption of self-directing learner at the core of the process. Thus, while attempting to foreground the idea of the network, connectivism too often retreats to the notion of a rational and autonomous subject at the centre of activity, reasserting the humanist idea of mastery over environment, technology, and network.

As the foundation of connectivism, the PLN demonstrates how entrenched ideas about the human subject underpin the notion of the learning community. The practices of normalisation and the banning of particular behaviours within the community are thus bolstered by the routines of subject formation, in which the individual learner is required to persistently excise difference in favour of a personalisation grounded in the false truth of an authentic and intentional human agency and identity. I have therefore suggested that the operating of the PLN constitutes significant limitations for education by reducing our understanding to that of an intentional subject, able to straightforwardly and instrumentally act within the connectivist environment based on an agency located within the ‘self’. This disregards the theoretical perspectives I have drawn upon in this thesis, which contend with a distributed, sociomaterial agency, and view the humanist subject, not as the taken-for-granted source of intentional activity, but rather as something produced in complex entanglements of the human and non-human. The rational and self-directing agent of the PLN thus fails to engage with the ways it is *itself* constructed through the connectivist process. I will discuss this future research agenda in chapter 8.

In this chapter I have demonstrated that, alongside the corporate MOOC promotion that assumes a world of universal participation, emerging research, as well as connectivist theory, seems to delineate acceptable ‘insider’ communities from a deviant ‘outsider’ population. This boundary is constructed precisely along the lines of an assumed universal humanist subject. Such a tendency to regulate insider practices is highly significant for projects such as the MOOC, which is often considered within a broader open educational movement

(Yuan and Powell 2013, Lane 2013, Lane *et al.* 2014) that emphasises inclusivity. While such a movement is neither formalised nor well-defined, I have argued elsewhere that ‘openness’ is primarily understood in terms of unobstructed access to information or the increased opportunities to connect with others (Knox 2013a, 2014). I suggest that the theorisation of ‘openness’ has not extended to considerations of participation in the MOOC, which remains prescribed as either an orthodox engagement with the routines of assessment, or a rigid set of procedures for community involvement. The procedural approach to participation in open education is particularly notable given the anti-institutional stance often adopted by advocates of connectivism (McAuley *et al.* 2010, Stewart 2013), allusions to the moralistic human rights to education claimed by Udacity (2014b, and see fig 17), and notions of individual empowerment proposed by Coursera (2014c). In purposively seeking to challenge and critique orthodox institutional practices, the project of the MOOC has tended to establish alternative *models* that assume universal relevance and appropriateness. The critical stance of Readings (2000) is pertinent here. Drawing on the work of Lyotard (1985), Readings argues that to replace one model with a supposedly purer form merely continues the ‘imperialism of modernity’ (2000, p114). Further, Reading suggests:

The claim to legitimate a prescriptive politics by appeal to a literally describable model of universal justice necessarily totalises one narrative of the state of things and victimises those excluded from political performativity. (Readings 2000, p114)

Possible alternatives to this political arrangement will be further examined in chapter 7. As Lewis and Kahn suggest, ‘[w]e must risk the open space between human and nonhuman animals that emerges when we let the anthropological machine idle’ (2010, p73).

Chapter 6: Housing the MOOC: space and place in ‘ModPo’

I dwell in Possibility –
A fairer House than Prose –
More numerous of Windows –
Superior – for Doors –

Of Chambers as the Cedars –
Impregnable of eye –
And for an everlasting Roof
The Gambrels of the Sky –

Of Visitors – the fairest –
For Occupation – This –
The spreading wide my narrow Hands
To gather Paradise –

I dwell in Possibility by Emily Dickinson (2014)

Introduction

As we have seen in chapter 4, both corporate MOOC promotion and associated research appear to proffer the entirety of globe as the legitimate space for expansion. In this chapter I turn to the consideration of a specific MOOC which appears to privilege the local over the global, through the promotion of an elite campus building as the core ‘place’ of authentic education. However, following from the dualist tendencies highlighted in chapter 2, I will suggest that such a focus remains within a binary of global | local, and thus fails to challenge the colonialist inclinations discussed in chapter 4. The purpose of this chapter is to demonstrate that this limitation is imposed by the preservation of the humanist subject as the underlying framework for MOOC education. Locked within a dualist orientation that renders space as static and inert, the MOOC examined in this chapter tends to endorse orthodox spatial arrangements that maintain the elitism and inaccessibility of the university campus, and thus contradict the claims of egalitarianism and admittance that underpin the MOOC project.

While the previous two chapters have adopted a broad examination of the emerging MOOC format, this chapter will consider the dominance of the humanist subject by focussing analysis on the particulars of a single course. Modern and Contemporary American Poetry, known as ModPo, was first offered on the Coursera platform in 2012 from the University of Pennsylvania. This chapter is about how a very particular spatial arrangement is produced in ModPo; one that constructs the MOOC around the localised place of the ‘Kelly Writers

House' campus building, subsequently referred to as the KWH. In this way, an authentic and orthodox site of education is preserved as a place to which access is granted, and from which teaching is broadcast. This arrangement will be shown to be underpinned by the framework of the humanist subject, which limits the idea of space to the bounded, regional, and in the case of the MOOC, largely inaccessible.

In privileging the singular and local, I will suggest that the ModPo MOOC disregards the globally distributed arrangement and diverse contexts of its participants. In this way, a dualist relation is maintained between the micro and macro, the 'physical' and 'virtual', and an 'inside' and 'outside' of educational provision. This chapter therefore follows from the analysis in chapter 5, where certain research strategies and theories were shown to create a fundamental exclusion structured by the humanist subject. In this chapter, I will examine the orthodox notions of place maintained by this humanist orientation, which, I suggest, serve to bolster transcendent universalism by assuming the cohesive and localised community as a model for global MOOC participation. In this way, a retreat to the supposed authenticity of the local fails to engage the complexities of the global reach of the MOOC.

I will be necessarily selective in focussing on one particular MOOC, and therefore the claims made about the spatial orderings of this emerging educational format are not suggested to be generalizable. Nevertheless, I contend that this discussion of space has significant value for the ways that MOOCs can be understood, and although courses may be considerably different in their spatial arrangements and intentions, the insights offered here have important dimensions that are reflected in the underlying premise of the MOOC format.

This chapter will begin with an introduction to the ModPo MOOC, summarising the basic structure, content and assessment, as well as highlighting the existing educational practices of the department behind the course. Importantly, this will outline the existing online provision, and the campus building, from which the ModPo MOOC derives.

Following this I will outline the spatial and mobilities theory which grounds the subsequent analysis in this chapter. These theories will be situated within the broad area of posthumanism which underpins this thesis, and shown to challenge the dominance of the humanist subject as a framework which structures how space is perceived. These sensitivities will allow me to examine the ways that the ModPo MOOC both opens and limits educational possibilities; how inequalities and exclusions are produced alongside the

more overt claims of openness and egalitarianism. I will show that the very construction of ModPo as a ‘place’ significantly regulates and constrains how the MOOC can be understood.

In the first analysis section I will examine a forum thread entitled ‘Al Filreis = Emily Dickinson?’, in which the initial poem from the ModPo syllabus is discussed in relation to the KWH. I will show how the choice of poem deliberately emphasises the KWH building as the hub of ModPo activity, foregrounding a spatial ordering that establishes locality and place as a foundational part of the curriculum. The discussion will be shown to construct a concentric spatial arrangement, in which the KWH is recognised as a core, physical location, while ModPo participation is positioned as virtual and peripheral. However, I will also demonstrate how some student responses appeared to challenge this hierarchical orientation, and consider their own locations as legitimate contexts for study.

Next, the analysis will turn to the ‘Kelly Writers House Tour video’, a filmed sequence in which the course instructor provides a narrated guide of the building. I will examine specific scenes within this video to suggest how the KWH is constructed as a *place* at the University of Pennsylvania, as well as a course *space*, of which MOOC participants are encouraged to consider themselves a part. This examination will include interviews with the ModPo TAs that foreground notions of human community and food preparation, thus emphasising human co-presence and domesticity, alongside the privileging of the material structure of the university. Furthermore, an abundance of photographs within the KWH will be suggested to signal complex time / spaces, through which the KWH might be understood to emerge from multiple instances of presence and absence. These perspectives challenge the rigid distinctions of ‘place’ that the KWH tour seems to offer. The section will also highlight the persistent offers to visit the KWH that are made to viewers during the video tour. While genuine, I will suggest that they serve to gloss over the significant inequalities in mobility prevalent in the global populations targeted by the MOOC project. Rather than offering genuine admittance, this will be suggested to bolster the inaccessibility of the elite university by broadcasting idyllic images of campus space to populations for whom physical attendance is impossible. Furthermore, I will suggest that the tour video performs a visual demarcation of the KWH that can be contrasted with the visualisations of the world discussed in chapter 4. Here the video serves to map the boundaries of authentic course space, and promote the building as the core site of the poetry education on offer. This will be suggested to retain a relationship of ‘inside’ and ‘outside’, excluding ModPo participants from legitimate attendance and producing them as ‘visitors’. This reflects the relationship between

humanism and colonialism as discussed in chapter 4, where MOOC students were shown to be receivers, rather than active participants, in the educational broadcast.

The third analysis section will examine the forum thread ‘ModPo video tour of the Kelly Writers House - brand new!’, containing a number of participant responses to the tour video. I will highlight the potency of the narrative of place and localisation in the video by discussing a range of comments that appear to endorse the privileging of campus space. However, these will also be shown to betray alternative visions of space that weave together multiple material relations and contexts, thus troubling the neat arrangement of a core place and a peripheral engagement. I will also analyse the tensions and challenges apparent in some of the responses. These will be shown to reveal the inequalities of mobility amongst MOOC participants, and the desire to travel; realities that are glossed over in the promotion of campus space in ModPo, and the marketing of MOOCs in general, reflecting the discussion of colonialism in chapter 4. The technologies of the MOOC will be suggested to create immobilities at the same time as offering increased access, underscoring the spatial multiplicities at work beneath the façade of corporate and course promotion. Thus, the responses to the tour video will be suggested endorse the maintenance, rather than the destabilising, of the elite educational institution. In this way, the privileging of core campus space echoes the colonialist orientation of the MOOC, in which a privileged ‘inside’ is preserved for export to the periphery; an export underpinned by model of the humanist subject.

The final section will analyse spatial and mobile arrangements of the ModPo discussion videos. Firstly, I will examine the purchasing of KWH souvenirs, in the form of the mugs used in the video discussions. These items provided ModPo participants with highly significant symbolic and material representations of the KWH, offering a sense of connection and ‘presence’ to the ‘absent’ MOOC students. Secondly, I will highlight the pedagogical implications of these broadcasts, centring on the rigid configuration of discussants and dialogue. It will be suggested that these videos tend to reflect an ‘immutable mobile’; a fixed spatial configuration that retains its shape through transmission. I will show that implications include the mimicry of MOOC arrangements that, given the elite status of partner institutions, may dominate the way educational activity is carried out well beyond the established boundaries of the campus. The peripheral impersonation reflects the colonising tendencies of the MOOC project, which seeks to universalise a narrow conception of educational practice.

Modern and Contemporary American Poetry

Acknowledged as one of the first MOOCs in the humanities (Funk 2012), in September 2012 the University of Pennsylvania offered a MOOC entitled ‘Modern and Contemporary American Poetry’ on the Coursera platform. The course, which became known as ‘ModPo’, consisted of a reading list of poems accompanied by a series of corresponding videos in which the teaching team discussed and interpreted the work. The course followed a typical platform arrangement, as discussed in chapter 1, involving video content, a discussion forum, multiple choice quizzes and peer assessments. The first instance of the course was divided into nine chapters of content, delivered in 10 one-week sections, and comprised of 83 videos, each of which involved a detailed, line by line analysis of a specific poem from the syllabus. ModPo was convened by Al Filreis, the Kelly Professor of English at the University of Pennsylvania, and a founding member and faculty director of the KWH. The teaching team also consisted of 8 Teaching Assistants (TAs), who feature prominently in the video discussions, and who are associated with the same faculty building. The first instance of the course was assessed with weekly multiple choice quizzes and four written assignments that utilised the peer assessment functionality. Peak enrolment was reported as 35,917, a figure posted by Filreis in the ModPo forum ‘Because Everyone Loves Statistics’. This places it close to the average MOOC enrolment of 43,000 reported by Jordan (2014).

Significantly, ModPo was based on an existing course at the University of Pennsylvania called ‘English 88’, taught by Filreis and with its own rich history of online provision (see Filreis 2013). The ModPo MOOC therefore manifested as a continuation of an established set of course content, as well as an existing perspective and rationale for the use of web technologies as a mode of access to university education. The kind of ‘openness’ offered by this course was therefore not entirely novel to the established practices at the KWH. As shall be examined further below, the building itself was founded in 1995 as a community space, open to the wider Philadelphia society beyond the university, and members of the public in general. From its inception then, the building has served as a hub for both creative writing courses at the university, and broader community engagement practices and events.

It is this ethos, I suggest, that has extended into the development and delivery of the ModPo MOOC. The community building, that is, a specific and located place with an open access policy, serves as the model for ModPo. This is an orientation which, as we shall see below,

preserves a core site of authentic education, to which MOOC participants are granted admittance as visitors to a privileged campus space.

Spatiality and Mobilities Theory

In this chapter I draw upon a selection of spatial and mobilities theory in order to underpin the analysis of the ModPo MOOC. The following section will outline these perspectives, selected specifically for the ways in which they engage with the emerging theoretical and methodological sensitivities of spatiality and mobility, as well as for their explicit reference to issues of education, globalisation, and the notion of the humanist subject that are at the forefront of this thesis.

The so-called ‘spatial turn’ in the social sciences is signalled by an increasing interest in the idea of space and the ways it is produced (Fenwick *et al.* 2011). Fenwick *et al.* highlight an important distinction between the notions of ‘space’ and ‘place’; the former shaped through complex relations and ‘simultaneous practices-so-far’ (2011, p129), the latter ‘a sedimented region or meaning’ (Fenwick *et al.* 2011, p129). Spatial theory is therefore concerned with notions of space that are ‘enacted, turbulent, entangled and hybrid’ (Edwards *et al.* 2011b, p221), rather than stable and located. For education, this involves a significant reconceptualization of space; something often ‘left unexamined as simply a different context, container or backcloth for curriculum and pedagogy’ (Edwards *et al.* 2011b, p220). Furthermore, Usher highlights how this attention to space has been intimately tied with ideas about globalisation (2002), where increased connectivity and community require new theoretical and analytic resources (Edwards and Usher 2006, Fenwick *et al.* 2011), indicating the particular significance of a spatial analysis to the MOOC project.

It is important to note here the importance of materiality and time in spatial theory. Spatial orderings are thus considered ‘material assemblages of subjects-objects that interrupt and effect’ (Fenwick *et al.* 2011, p132). This importantly, I suggest, locates spatial theory within the umbrella domain of posthumanism which underpins the theoretical stance of this thesis. The spaces of the MOOC in this chapter will be thus examined as interminglings of human and non-human, social and material. This anti-anthropocentric stance is also reflected in Massey’s concern for a non-dualistic space/time (1993). Where the concern for space has often been posited as a reaction to the dominance of time (Fenwick *et al.* 2011), and in particular the modernist idea of history as the rational progress of Man, Massey calls for a non-oppositional view in which ‘[s]pace is not static, nor time spaceless’ (1993, p80). This

demonstrates the way that spatial theory has been able to challenge the dominance of the humanist subject as both an essential entity and the inevitable result of historical progress. Thus spatial theory is being employed here to expose the limitations imposed by a humanist framework on the complex spatial orderings of the MOOC.

As a further response to the perception of space as inert and stable, Sheller and Urry propose the 'new mobilities paradigm' drawing attention to the movement of people, goods and information (2006). As such, 'mobilising the "spatial turn"' (Sheller and Urry, p216) prompts a concern for the ways spaces are constituted through motion and flux, acknowledging their durational dimensions. This approach responds to a privileging of 'stability, meaning, and place' (Sheller and Urry 2006, p208) within social science. Usher also highlights the modernist inflections in the concern for established locations, where 'stability of place is seen as resulting in stability of meaning and identity' (Usher 2002, p44). Sheller and Urry draw upon a loose reading of Heidegger's notion of 'dwelling' as underpinning this emphasis on sedentarism, suggesting an established 'ontology of distinct "places" and "people"' (Sheller and Urry 2006, p214). This combination formulates Heidegger's authentic sense of human being, for which the habitation of place is a prerequisite (1971). For Heidegger, the true and etymologically pure understanding of the term 'dwelling' involves ideas of building, natural order and essence (1971). To dwell is to build a site which gathers together, or makes present, a natural order, thus conserving an authentic state of being. While Heidegger appears to assert that while dwelling never quite achieves a final state, it is teleological, and tends towards an ultimate natural form (1971). In the concept of dwelling, there is only one possible configuration of space. Heidegger unmistakably associates this idea with an essential human condition, maintaining that 'the manner in which we humans *are* on the earth, is *Buan*, dwelling' (1971, p145). This notion of being becomes central to the idea of space, for which he draws on an 'ancient meaning', that of 'place cleared or freed for settlement and lodging' (1971, p152). Thus, dwelling is positioned as the relationship between human beings and space, where a stable location creates the setting into which human being assumes it's most authentic condition. This is crucial for the analysis in this chapter, because it links the idea of sedentary space with the essentialism of humanism. Thus the purpose of the subsequent analysis is to show that the spatial orderings of the ModPo MOOC tend to maintain a humanist orientation that creates an absence | presence binary. In this way, I suggest that the MOOC produces the very conditions of inaccessibility and exclusion that it elsewhere claims to challenge.

In contrast to the privileging of place and people, the mobilities paradigm foregrounds the ‘complex relationality of places and persons connected through performances’ (Sheller and Urry 2006, p214). Crucially, and following from spatial theory, this emphasis is often on material relations, therefore de-centring human beings as the primary object of study, and focussing instead on contingent relations between humans and non-humans (Fenwick *et al.* 2011). Space is not considered to be purely non-human, but rather a ‘dynamic multiplicity’ which is continually performed through ideas, practices, materials and technologies (Edwards *et al.* 2011, p221). One of the important questions surfaced through spatial theory is about ‘how subjectivities are negotiated through movements and locations’ (Edwards *et al.* 2011, p221). This resonates with the implications for education discussed in chapter 2, where an orthodox approach centres a rational and autonomous human subject as the foundation and product of the educational process. In contrast, spatial analyses invoke questions about ‘a future for education without learning and the knowing subject’ (Edwards *et al.* 2011, p230).

Importantly, the spatial and mobilities approaches I specify here do not, I suggest, proffer reductive or universal alternatives to the static and the sedentary. Rather, as Sheller and Urry contend, ‘there are hybrid systems, “materialities and mobilities”, that combine objects, technologies, and socialities, and out of those distinct places are produced and reproduced’ (2006, p214). Thus the grand narratives of either the nomadic or territorial (Hannam *et al.* 2006) are avoided. Edwards *et al.* caution against approaches where there is ‘often an implied set of binaries between mobility, openness, cosmopolitanism and freedom, on the one hand, and place, closure, parochialness and constraint on the other’ (2011, p222). It is not my intention therefore to privilege ideas of fluidity and movement above those of stasis and fixity, but rather, following Mol and Law, to appeal for ‘topological multiplicity rather than uniformity’ (1994, p644). Moreover, rather than privilege or romanticise pure motion, my intention here is to acknowledge the constraints, stabilities and inflexibilities necessarily involved in movement, or what Edwards *et al.* term the ‘moored, bounded and stabilised for the moment’ (2011, p223). Such sensitivity involves ‘tracking the power of discourses and practices of mobility in creating both movement and stasis’ (Sheller and Urry 2006, p211), and it is this recognition of dominance and inequality that will have particular relevance for the analysis of the ModPo MOOC.

Drawing upon spatial and mobilities theories, the intention of the chapter is to examine ‘how spaces become learning spaces, how they are constituted in ways that enable or inhibit

learning, create inequities or exclusions, or open and limit possibilities for new practices and knowledge' (Edwards *et al.* 2011, p221). In order to do this spatial theory will be considered a tool for analysis rather than abstract theory (Fenwick *et al.* 2011). This reflects the stance outlined in chapter 3, where I challenged the notion of a strict divide between theory and methodology. In a similar fashion Hannam *et al.* suggest: '[t]he new mobilities paradigm must be brought to bear, not only on questions of globalization and the deterritorialization of nation-states, identities and belonging, but more fundamentally on questions of what are the appropriate subjects and objects of social inquiry' (2006, p10). The following analysis will therefore show how specific elements of ModPo are involved in producing particular spatial orderings and subject positions that have important implications for the MOOC project. Foremost here are the limitations and exclusions imposed on notions of space by the humanist framework. I will also expose alternative readings of space that challenge the centrality and authority of the local, and which surface complex spatial arrangements constituted through the movements and moorings of human and non-human factors. This will not presume to delineate a comprehensive theory of space for the MOOC, but rather foreground the differing ways that location, presence, stability, place and distance are performed with a specific course offering.

The House of Possibility

The very first poem in the ModPo syllabus is 'I dwell in Possibility' by Emily Dickinson (2014, see preface to chapter). While interpretation of this poem is varied, and is the very subject of ModPo's first video discussion, it is very obviously a work which uses the metaphor of a house to discuss the medium of poetry itself. This choice of poem is highly significant for a spatial analysis of ModPo because it establishes the idea of place at the very foundation of the MOOC offering. The phrase 'I dwell', which also forms the first line of the poem, reflects Heidegger's theorisation of 'dwelling' discussed previously, and I suggest, emphasises a similar concern for the value of place and human habitation. For Dickinson, the house serves as the authentic site for her imaginative and poetic capacities (2014).

The significance of this selection was discussed in a forum thread entitled 'Al Filreis = Emily Dickinson?'. This thread was 'pinned' and 'approved'; two functions of the Coursera forum which demonstrate endorsement and recommendation from the ModPo teaching team, and ensure that it remains highly visible. The initial post from participant Callie suggested:

it occurred to me this poem wasn't selected haphazardly as the first one students encounter in the course... What better way to welcome 30,000+ students to the world of poetry than with Dickinson's house conceit? By joining this class, we all approached the house of poetry -- we said, "We want to see what's inside. We want to be granted admission." As the course's beginning grew closer, we looked eagerly in the windows, Al enticing us with sample poems and other details via email and Facebook.

The post goes on to claim 'If we're the visitors being granted entrance to the house, then Al must be Emily Dickinson, at the center of it all, saying, "I want you to come in. I want you to see the possibilities of poetry. But it's going to take some work. Are you game?"' (Callie, ModPo forum thread 'Al Filreis = Emily Dickinson?'). Noteworthy is the continuation of the house metaphor of the original poem, reconfigured here to describe the ModPo course itself. In so doing, it implies, not only a spatial arrangement in which a bounded dwelling is cast as the core place of learning, but also a distinct role for MOOC participants: *visitors*. Taking part in ModPo is thus proposed as an act of entering a specific locality, but moreover an undertaking which inscribes the participant with the status of outsider and temporary guest.

A number of responses within the same thread supported this idea. Participant Corrie declared 'WE ARE ALL IN THE HOUSE! ;0 its a grand thing...', while Nathalie posted 'Thank you professor Al, for giving us the possibilty to enter your house of poetry'. Importantly, some participants made direct associations with the KWH, Zack suggesting: 'The house is Kelly Writers House haha :)'. Participant Julia posted: 'nowadays people and courses like this allow students scattered throughout the world to have the Possibility to visit the Writers House to enjoy and understand things with some work and the help of others. Her dream has become true!'. These comments appear to move beyond a metaphor of 'place' as simply a way of engaging in the study of poetry, and establish the building of the KWH as the authentic site of the ModPo MOOC. Of particular note is the idea that participants are dispersed, yet able to congregate at the specific local of the KWH for purpose of education. This spatial ordering reflects, not only the arrangement of a centralised institution serving a diffuse population, as discussed in chapter 4, but also ideas about "virtual" and "imaginative" travel associated with the Internet (Sheller and Urry 2006, p207). For Julia, to participate in ModPo is to visit the KWH; fusing campus and course, university real estate and MOOC. Indeed, this conflation is confirmed in a reply by course instructor Filreis:

I just now took a photo of the plaque in the foyer of the Kelly Writers House. When we created this free-space, this literary salon for everyone (it is free and open to the public) we conceived of it as a house of

possibility, and Emily ... became our patron poetic saint. We knew that our occupation would be *this* - "this" being what *we're* doing now. The community is physical, in the house in Philly. And its virtual and global, as in *this*. (Al Filreis, ModPo forum thread 'Al Filreis = Emily Dickinson?' emphasis original)

Here the significance of the poem 'I dwell in Possibility' is revealed, not only for the KWH, but for the ModPo MOOC as well (see fig 47 for the photo referenced). The perceived importance of stability and dwelling, derived from the Dickinson poem, are inscribed in the very structure of the building, seeming to give location to the poem itself, but also to imbue the KWH with the qualities suggested in the verse (see fig 47). What is striking for the discussion of the MOOC, however, is the categorising of 'physical', 'virtual' and 'global' space. Significantly, the suggestion appears to be one of a single community, yet one which is divided into two concentric groups; the physical and located core at the KWH, and the virtual expanse of the global population undertaking the MOOC. This appears to maintain the binaries of 'virtual–real, immaterial–material, cyberspace–physical space' that spatial theory calls into question (Edwards *et al.* 2011, p225).



Figure 47: The photograph of the Kelly Writer House commemorative plaque referred to in the ModPo forum thread 'Al Filreis = Emily Dickinson?' <http://media.sas.upenn.edu/afilreis/ModPo-misc/KWH-plaque-Emily.jpg>

Nevertheless, the thread contained other comments that seemed less sure about the centrality of the KWH. Acknowledging her own context and location, participant Joanna claims, 'if only I could remove the roof from my apartment to sufficiently experience this first week to its' full Dickinsonian potential... hmm, for now, I'll walk into this "house"'. A tension between the supposedly contained site of the course and the distanced point of participation is surfaced here. Joanna appears to express the idea that participation in ModPo should manifest within her own environment, yet the video seems to be encouraging her to perceive

the place of education as the KWH. Other contributions seemed to convey doubt about the surety of admittance, poster Carolina adding 'Is an invitation but the entrance is not sure, because not anyone can enter? I hope have the possibility of dwelling in that marvelous place'. Here the validity of imaginative travel to the KWH is challenged, and the desire to gain access to the physical building is expressed. Poster Candice reveals a similar aspiration, commenting 'I hope to become a fair visitor in the Kelly Writers House dwelling sometime when I'm in the area - in the physical in addition to the virtual plain. :-)'. This appears to maintain a hierarchical ordering that attributes greater authenticity to the location of the campus compared to a lesser engagement with the MOOC. Interestingly, Filreis replies directly to this comment, asking '[Candace], will you join us for one or more of the live webcasts?'. This is significant because the synchronicity of a live video broadcast seems to be offered here as a way of gaining further admittance to the physical location of the KWH. To bring the virtual into phase with the physical, a unified 'time / space', bestows upon it an enhanced level of authenticity, and preserves the core location of the KWH as the prime location of ModPo activity. Furthermore, the broader implication here is of a supposed technological solution to the barriers of geography and distance, reflecting the corporate MOOC promotion in chapter 4, and the technological instrumentalism discussed in chapter 2 and 3. Rather than examine desire for co-location and presence at the prestigious University of Pennsylvania campus, the ModPo convenor appears to offer the live broadcast as a way of resolving the tensions and inequalities of mobility, a point I shall return to below.

Elsewhere in the thread, a less hierarchical arrangement is implied. Participant Sarah suggests:

I totally see at the Kelly writers House as one of the rooms in the House of Possibility... One of many... This class definitely been a virtual room and of itself. Any house for writers, especially poets gather regularly I would consider being one of these rooms.

Significantly, this seems to deny an oppositional arrangement of 'real' and 'virtual', suggesting the embracing of multiple spaces. Such a position is reflected in participant Dilsey's response: 'any space where poetry is created to the fairest of the people, where you have the possibility to dwell in, should be consider a "House of Possibility"'. However, while a privileging of the KWH as the course location appears to be rejected, the boundary between an online and offline space is maintained. Dilsey goes on to suggest:

even if we are not part part of the Kelly Writers House, we could say that this online class is a House of Possibility. ... we are becoming

intellectual people too, poetry lovers like Emily Dickinson, and because of that we are reaching heaven... in a cyber/online interactional way!!

This early forum exchange demonstrates the strong connection between ModPo and the University of Pennsylvania campus building of the KWH, established within the course content itself in no uncertain terms by the course instructor. However, it also reveals a marked lack of theorisation concerning spatial arrangements of this MOOC, both from course organisers and participants. While not necessarily always hierarchical, a rigid distinction between ‘online’ and ‘offline’ space is maintained. This reflects, I suggest, ‘a romantic clarity about size and space’ (Callon and Law 2004, p4), in which the global and the local of the MOOC are assumed to be concentrically ordered, constant, and in their place.

The Kelly Writers House Tour

The centrality of the KWH within the ModPo MOOC is established further with the inclusion of a video tour of the building. The ‘Kelly Writers House Tour video’ was published on YouTube, and posted in the announcement section of ModPo during week four of the course. It features the course instructor Filreis providing a walking tour of various rooms and features of the building, beginning outside the front gate of the property, and proceeding to various areas within the building. In each room, Filreis interviews a number of the ModPo Teaching Assistants and KWH support staff in turn. This section will examine a selection of scenes from the video in order to highlight the spatial orderings this resource attempts to establish within the ModPo course. I suggest that the tour acts to exhibit and define the KWH as the central and primary location of course activity, and the focal point of participant attention. However, within the very video that attempts to establish a core location are, I will suggest, the indications of alternative kinds of spaces and movements, such that “‘place’ can be seen as a particular, unique, point of their intersection’ (Massey 1991, p28). Furthermore, I suggest that this video can be understood as a map of the MOOC; a representation that distinctly contrasts the visualisations of the world discussed in chapter 4, yet nevertheless attempts to define the boundaries of authentic course space. Rather than being a MOOC cut off from any ‘real’ context, as claimed by Portmess (2013), I suggest that ModPo emphasises a foundation and grounding in established institutional practices.

Upon entering the KWH, Filreis introduces the commemorative plaque referred to previously, announcing ‘the house was built in 1851, making it one of the oldest houses in the university’. The historicity of the KWH is accentuated here, appearing to grant a unique

status to the structure due to its age²⁶. This introduction is a notable contrast to the corporate promotion discussed in chapter 4, in which innovation, and multiple localities, were emphasised. Just as Usher suggests ‘renewed interests in the regional, historical and local in response to the perceived efficiency, functionalism and impersonality of modernism’ (Usher 2002, p46), the KWH tour video might thus be understood as a response to the fragmentation and instrumentalism perceived in the MOOC. Engraved in the bottom right corner of the plaque is a quote from the Dickinson poem discussed previously, referring to themes of visiting and occupation (see fig 48). This scene, I suggest, establishes an inaugural link between the theme of dwelling in the Dickinson poem and the KWH as the central hub of ModPo activity. Dwelling and place are interwoven as the foundation for course activity.



Figure 48: A still from the Kelly Writers House tour video showing the Dickinson quote engraved on a commemorative plaque http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypzLY#t=76s

Significantly, this situates the ModPo MOOC as an extension of an already established campus-based educational programme and a recognised community location. Rather than considering what kind of space the ModPo offering might constitute in its own right, the video tour appears to ground the MOOC in a specific place, that of the KWH. The particulars of participant locations and contexts, as well as the spaces implied by the MOOC platform technology, appear to be disregarded here, with the assumption that the KWH serves as an ideal, accessible, and transferrable place of authentic poetry education. The notion of visiting invoked by the reference to the Dickinson poem has a particular resonance when presented in the video tour. This displaying of the KWH acts to isolate, and venerate, the building itself, foregrounding an idea of place as ‘fixed, given, and separate from those visiting’ (Sheller and Urry 2006, p214). Not only are those entering the physical building

²⁶ The course instructor Filreis also posted the following link in a discussion thread, which provides further information about the history of the KWH: <http://afilreis.blogspot.com/2013/01/kelly-writers-house-in-1908.html>

marked as visitors to a distinct and privileged location, but viewers of the video are produced as *additionally distanced* outsiders, being offered admittance to the genuine site of course activity.

The ensuing scenes of the video depict interviews with the ModPo TAs and other members of the KWH staff, who are placed in the various areas of the building encountered in the tour. I suggest that the prevalent themes emerging in these exchanges relate to community and domesticity, highlighting the convening of people within the KWH building and the consuming of food (Knox 2014b). The first noteworthy example is an interview with TA Dave, in which the KWH is described as an open and welcoming place for University of Pennsylvania students and local members of the public alike (see fig 49).



Figure 49: A still from the Kelly Writers House tour video depicting the interview with ModPo TA Dave http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypzLY#t=289s

TA Dave states: ‘it’s been great to have a place that’s so welcoming to anybody. There is no requirements, you know, you don’t have to be a grad student or undergrad, or involved in the school, you can be anybody in the community, and it’s just been a great welcoming place’.

This foregrounding of openness reflects the broader corporate promotion of MOOCs discussed in chapter 4, in which admittance appears to be the primary goal. For ModPo, this orientation tends to preserve the KWH as a fixed location to which people travel and at which they convene; a central and specific place that enables the activities of the community. The assumption of ‘value and authenticity in notions of place and the local’ (Edwards *et al.* 2011, p223) appears overt in this promotion. However, significantly, it is not the building itself which is definitively advocated in these terms, but rather the community of people, emphasising a sense of place that is grounded in human co-presence (Knox 2014b). Combined with the foregrounding of the plaque discussed above, this would seem to

articulate a place that is produced through the intermingling of material structure, symbolic meaning, and human co-habitation; however this is not made explicit.

The assembling of community is emphasised further in two scenes which draw attention to photographs of KWH visitors and events. Firstly, a collection of photo albums is introduced as a prominent feature of the ‘living room’, suggested to promote the recollection of KWH events (see fig 50). This serves to emphasise the already established workings of the KWH as a site for communal activities involving a range of visitors to the building. As such, the KWH is foregrounded as a place with a clear identity that precedes ModPo, and seems to exist independently of it.



Figure 50: A still from the Kelly Writers House tour video showing photo albums and photographs associated with community events http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypZLY#t=217s

Photographs are highlighted further on in the video tour, with a brief shot of a large pin-board adorned with numerous photographs of KWH visitors (see fig 51), as well as numerous framed pictures appearing in a number of the interview scenes. Combined with the interviews that structure the progression of the tour, the focus on community and people is underscored. Rather than the material dimensions of the building itself, or indeed the technologies which make the broadcast of the video tour possible, community is formulated here as the exclusive product of human co-presence. While this exclusive focus on the social mirrors the articulations of community discussed in chapter 5, there is a clear attempt to emphasise authentic, grounded individuals, rather than statistics or graphs of distributed populations or networks. The KWH is being promoted as an institution that is comprised of its human community; a collective that is open and receptive to the public, yet which assembles at a very specific location.



Figure 51: A still from the Kelly Writers House tour video display a pin board adorned with photographs of visitors http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypzLY#t=769s

However, the ubiquitous photographs allude to a less stable and bounded notion of ‘place’; one that spans different times and that is produced through distinct interminglings of visitors and diverse instances of travel. The photographs appear as windows to other time / spaces, serving to make present people that might be conventionally considered elsewhere, troubling the rigid and oppositional distinctions of presence | absence. The KWH as a place thus becomes conditional upon its visitors in a broader sense than a simplistic notion of community. In this interpretation, the KWH is being persistently made in the convening of people, but also without a rigid boundary of place; being constituted in absence and well as presence. Following Massey (1991), the place of the KWH might then be considered to form from relations of the ‘outside’, as much by its supposed ‘internal’ cohesive identity and historicity. The journeys required for such assemblies must also be foregrounded here; movement to and from the KWH that is also constitutive of the space. As Sheller and Urry suggest, spatial ‘performances are intermittently mobile “within” the destination place itself; travel is not just a question of getting to the destination’ (2006, p214). The activities, procedures and technologies of travel are thus as much part of the production of the KWH as the video tour itself. This potentially global sense of the local (Massey 1991), is I suggest, a more fruitful way of understanding the space of the ModPo MOOC.

Offers to visit the KWH are extended to the ModPo MOOC viewers on a number of occasions during the tour video. Particularly notable is a scene in which Filreis interviews ModPo TA Kirsten, emphasising the preparation and eating of food as a core communal event at the KWH (see fig 52). The offering of food is stressed as a public event, at which anyone can gain admittance. During this part of the interview Filreis asks the TA Kirsten,

‘are you saying that if a ModPo person just shows up between September and mid-May, usually on a week day night, they are likely to be able to eat’, followed by an affirmative ‘yes’ from his interviewee. This is clearly an orchestrated attempt to promote the public accessibility of the KWH, and the specific inclusion of ModPo participants with the central community activities of the organisation. The consuming of food is also particularly significant in accentuating the overt domesticity of the KWH, which, combined with the ubiquitous photographs, creates the impression of communal family life (Knox 2014b). This is the attempt to frame the ModPo MOOC in terms of the informal, non-threatening space of the home, a domesticity that reflects the stability and sedentarism of the notions of dwelling discussed previously. However, notwithstanding the sincerity of the offer, the invitation to ModPo participants is an example of a considerable lack of engagement with the global context within which the MOOC is assumed to occur. In a world where mobility is deeply unequal and (Hannam *et al.* 2006, Sheller and Urry 2006), the assumption of the unproblematic and universal ability to travel appears to gloss over the diverse contexts in which different people of the world might access MOOCs. These issues of power and inequality will be shown to surface in responses to this video, and will be developed as a theme in the subsequent section.



Figure 52: A still from the Kelly Writers House tour video featuring an interview with ModPo TA Kirsten http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypZLY#t=357s

The final scene of the video tour takes place in the upper floor garret of the property, which serves as Filreis’s office. The purpose of welcoming and inviting viewers to the KWH continues, with Filreis speaking to the camera and stating, ‘I hope and I seriously ask you to come when you are in Philadelphia or nearby, stop in at the writers house, you don’t need to announce yourself, just walk in the front door...just come and enjoy yourself’ (see fig 53).



Figure 53: A still from the Kelly Writers House tour video depicting ModPo convenor Al Filreis
http://www.youtube.com/watch?feature=player_detailpage&v=W9AtcrypZLY#t=974s

This scene sums up the promotional intentions of the tour video; making visible the KWH building from which the ModPo is supposedly offered, as well as publicising the open door ethos of the community group. Significantly, ModPo is therefore assumed to be a straightforward extension of an already established orientation; of a sedentary core and a visiting periphery. Furthermore, this final scene emphasises the attention given to interior space, arriving finally at the apex of the building; the inner sanctum of the course convenor. The tour thus manifests as a marking of territory; a drawing of the boundary between the physical located space of the KWH, and by implication, the ‘outside’ and the non-place of the ModPo MOOC. Despite what may be positive intentions in the offers of hospitality, this maintains the inner space as the static location to which outsiders are obliged to visit and desire.

I suggest that the tour video serves not to only instil the bounded location of the KWH as the grounding for ModPo, but also to promote an idealised notion of community as the unproblematic solution to the issues of accessibility and participation that the wider MOOC agenda has sought to resolve. This reflects Usher’s critique of constructions of place, which ‘deeply embed “warm” notions of local community whilst at the same time displacing the conflicts, oppressions and limitations of bounded places, and readings of “community” as modern disciplinary institutions’ (2002, p44). The video appears to privilege the authenticity of an anthropocentric ‘place’ of communal education, yet fails to address the broader implications of a globally dispersed population of participants, and a range of contexts, locations, and technologies in the production and enactment of the ModPo MOOC.

Furthermore, this idealistic promotion of the KWH assumes the same unidirectional mode of education discussed in chapter 4, in which a population of MOOC participants is expected to crave the prestigious offerings of the elite institution. Thus the KWH tour video, while simultaneously maintaining its ethos of community and accessibility, also embodies the broadcast agenda of the corporate MOOC by promoting Ivy League campus space as the focus of deprived student desire. Furthermore, the video tour preserves the KWH in a pure state, untainted by ModPo participation, while the viewers, as we shall see below, are positioned as requiring domestication. I suggest that the video tour thus serves to bolster the *inaccessibility* of elite university education, by broadcasting idyllic images of campus space that significant proportions of MOOC participants will never be able to attend (Knox 2014b). Furthermore, in precisely the same fashion as the visualisations of the globe examined in chapter 4, I suggest that the video tour performs a similar attempt to represent the ‘real’ domain of the MOOC. However, rather than the symbolising the landmasses and nation states of participants, this visualisation retreats to a core community building as the authentic place of this particular course offering (Knox 2014b).

Other voices, other rooms: power and potency in the ModPo fora

The launch of the Kelly Writers House Tour video was accompanied by a forum thread entitled ‘ModPo video tour of the Kelly Writers House - brand new!’. The thread comprises 101 posts from 57 different named commenters, four anonymous contributions, 21 replies from Filreis, and one from ModPo TA Kristen. The majority of posts expressed positive, often emotionally charged, sentiments towards the video tour. However, as shall be demonstrated below, a small minority surface tensions and oppositions to the overt localisation attempted in the promotion of the KWH. The following will highlight a selection of these responses. While a conventional reading of these participant responses might attribute a straightforward desire for a grounded place for education, I will suggest that they also surface alternative notions of space; arrangements which indicate the distributed and relational contingences which construct different spatial renderings of the MOOC.

In a typically positive response, participant Nelly suggests:

This online class has managed to upend the idea that online learning is detached and impersonal. How many online courses give a virtual tour of their space? I don’t imagine many. Everyone at the KWH and at ModPo have worked so hard to deliver a course that is enlightening, enjoyable, and surprisingly welcoming for 30,000+ people around the world.

Significant here is indication that the visualisation of a centralised place resolves the supposed problems of isolation and anonymity in online education. This reflects the fundamental bond between human being and place identified in the sedentarist approach of Heidegger (1971), assuming the online to have no authenticity without an identifiable physical location for human co-presence. The place of the KWH in the video tour is assumed to ground the MOOC participant, and provide personal connections with the other people within this space. This desire for ‘the “certainties” of bounded, campus space’ (Bayne *et al.* 2013, p572) is echoed in many of the responses below. What is striking in Nelly’s post is the assumption that the KWH is the course space itself; a perspective which appears to deny the MOOC platform any role, as well as any legitimacy in the location, context, and mode of access of participants. Nelly thus appears to disallow her own inclusion in the space of the ModPo MOOC. However, within the post itself, a far more expansive arrangement is acknowledged: a massive and globally distributed population of MOOC participants. These multiple and diverse locations are denied in the privileging of the KWH as the boundary of the authentic ModPo course.

A number of other responses, while praising the tour video, indicate the tensions in this concentric and hierarchical arrangement, and the immobilities constraining the ability of participants to travel. Caroline claims ‘I’m so inspired and at the same time envious’, and further ‘Unfortunately, I can’t even dream of visiting KWH, I live so far from it’. Here the privileging of the campus provokes resentment, revealing the desire for mobility and the significant barriers that stand in its way. A similar disappointment is expressed by Lucy, simply posting: ‘What a pity that I live so far away...’. This bolsters the negativity attributed to distance. Rather than creating a sense of space in which MOOC participants feel a part, the video appears to instil a sense of frustration and detachment. Participant Narcissa concurs: ‘I agree with [Lucy] about living so far away, but it can be a virtual home instead. It is really a home, full of atmosphere, and not a school or office-like’. This post appears to acknowledge the online facets of the course, and perhaps the digital properties of the video itself. However, the KWH remains the focus of attention, imbued with domestic qualities, to which the MOOC is merely ‘virtual’; a ‘nearly authentic’ version.

ModPo convenor Filreis replies to this exchange, posting: ‘It can be virtual. You can watch any of our programs live’, followed by links to the ‘upenn’ website where live streams from the KWH can be found (<http://writing.upenn.edu/wh/>). Significantly, this online content is outside of Coursera, and demonstrates the already established practice of web broadcasting

at the KWH. However, the straightforward promotion of a ‘virtual’ KWH not only maintains a distinction that privileges an authentic campus setting, but also glosses over the clear desire to have the means to travel. As Holdsworth (2009) highlights, ‘going away’ to university is highly sought-after and an indication of status and privilege. In this sense, while promoted as overcoming economic and geographical barriers, the MOOC can be understood to intensify educational *immobility* and offer only continued sedentarism to the less privileged. This is not to deny that moving, even ‘virtually’, can be ‘a source of status and power’ (Hannam 2006, p10), only to note that the desire for physical mobility is often not recognised. Rather, this response shows that technology tends to be viewed in instrumental terms, as the transparent means to access the campus (Knox 2013a, 2014b). Yet such ‘dependence upon machines for movement means that life is increasingly sedentary’ (Sheller and Urry 2006, p221), an arrangement that can preserve the very inequalities the MOOC project seeks to subvert. As Edwards has suggested, distance education has ‘paradoxical effects, as it can enable people to be kept “in their place”, while at the same time enabling people across great physical distances to be brought together through the use of communications’ (Edwards 1994). This highlights the multiple, and often contradictory, orientations of MOOC space that are marginalised by the promotion of the campus. It is the foundation of the humanist subject that produces the rigid absence | presence binary, and constructs the notion of technology instrumentalism, thus constituting the underlying limitation of space discussed here.

In other responses the potency of the video’s rendering of ‘place’ comes to the fore. Participant Tom posts: ‘Hola amigos: I really felt as if I was actually there. I wish I could visit you guys’. Whilst mirroring the desire to travel, this contribution also reveals the powerful capacity of campus images to invoke imaginary mobility. The video tour provides Tom with a sense of presence; a notion that is even more significant in combination with the Spanish greeting, suggesting considerable geographical distance from the KWH’s location in west Philadelphia, but also signalling the substantial economic disparities between the US and other Spanish speaking countries in the same continent. This is not to claim definitive knowledge of where Tom might be from, but rather to indicate the global issues that are surfaced by this uncommon use of a language other than English in the ModPo fora; a language that may imply inferiority in the context of the US (see Fram 2010). This is the ‘outside’ that is already the ‘inside’ of ModPo; a foreign participant that is denied involvement in the supposed core and authentic space of the course, yet who’s participation is integral to the very mission of the MOOC project.

The role of visitor is echoed elsewhere, participant Letty posting: ‘I felt like an honoured guest being invited into the home of ModPo with all of the “family” there to greet me. I wish a trip to the East Coast would be possible. I’ll have to learn from Emily Dickinson and be content to use my imagination’. Thus, even for those within the US, the ability to travel appears highly problematic, yet deeply desirable. Furthermore, these perspectives maintain the MOOC participant as an outsider, with the idea of being granted admittance as a ‘honoured guest’ notably contrasting the promotional claims of educational access as a basic human right, discussed in chapter 4. Letty proposes imagined travel as a lesser alternative to physical visitation, an understanding that appears to derive from an interpretation of the Dickinson poem, in which creative thought supposedly requires an authentic dwelling.

Evangeline continues this sentiment, suggesting: ‘Kelly House is a jewel. If I get the chance I will make a point to stop in and enjoy. For now it will be my imaginary place to go and read and write’. Here the imaginary appears to be de-privileged, rendered a substitute mode of engagement where physical co-presence is unattainable. This once again preserves the KWH as the authentic site of pure ModPo activity, within which cognitive activity is assumed to be of superior worth, reflecting Bayne *et al.*’s claim that ‘the material campus continues to be a symbolically and materially significant “mooring” for a group of students who may never physically attend that campus’ (2013, p581).

Aspirations of travel remain the dominant response. Candance posts: ‘What an inspiring atmosphere! On finishing the video I wanted to drag my husband and our cats off to go and camp in the Kelly Writers House garden. I too want to sit on that pond-green couch and lose days reading Gertrude Stein’. Noteworthy here is the intimation that a more genuine engagement with the course material can happen exclusively within the KWH property. The assumed necessity of place is also reflected in Maggie’s contribution: ‘Thank you for your generous hospitality – it comes through in everything you do. I have never felt so welcome when the subject matter was so intimidating’. Here place is assumed to making the educational tasks easier. The campus is positioned as easing anxieties about the course content, thus suggesting the need for an authentic sense of place to provide a foundation for educational activity. Elsewhere, this is formulated in terms more indicative of the prestige afforded upon elite institutions, such as the University of Pennsylvania. Celia suggests, ‘I really want to visit. I live in CT so it isn’t entirely implausible! It would be fun and I might absorb some of that Ivy League brain power!! :)’. Here the KWH is assumed to embody the

status of the leading US institutions, such that co-location is suggested to facilitate the transfer of its prestige from real estate to cognitive ability. We also see here the ‘campus envy’ exhibited by distance students (Bayne *et al.* 2013, p575), coveting an unfeasible presence within the estate of the elite university.

Indeed, university property is cast as an absent dimension of the MOOC in Walter’s post:

After all these days, one gets the feeling that the only thing that was missing, was getting to know better the KWH (or at least its physical space). Perhaps one day a visit can be made, after all I’m only an ocean away, and what are 3414 miles when you can get free food and drinks! :)

This notion of lack surfaces a sense of unease about the course, something supposedly resolved by the inclusion of the video tour. Place, then, grounds the novel and untried online experience with the established routines of physical structure and place. ModPo activity is suggested here to become more recognisable as education when bound with the traditional campus. However, rather than simply interpreting the ocean and the distance as negative external barriers, a spatial sensitivity encourages the recognition of such features as part of the dynamic performance of educational space (Fenwick *et al.* 2011). The vast expanses of seas and continents, through which the video broadcast travels, might then become enveloped in how we understand the spatial dynamic of the MOOC. The very condition of Walter watching the tour video is, in part, an effect of the ocean’s breadth, making it very much a part of the MOOC itself, rather than an inconvenient barrier to be annulled by the instrumental use of broadcast technology. Thus the periphery would already be the ‘inside’ space of the ModPo MOOC, rather than a lesser, and virtual externality.

The nostalgia of campus education is overt in Gene’s comment on the video tour: ‘It reminded me of my undergrad days at a small Midwestern liberal arts school ::sob:: and how supported I felt there as a word nerd, wandering its historic buildings and classrooms and the library stacks’. The emotion in this post is undisguised, in which the KWH tour appear to serves as tool for recollecting past educational experiences. Thus a nostalgic rendition of the privileged campus is transported into the MOOC space, maintaining a particular romantic notion of place as grounding the genuine higher education experience²⁷. One way to understand such reminiscence might be to view it as a reaction to the different and alien spatial qualities of the MOOC. As suggested by Massey, ‘longing for such coherence is

²⁷ Elsewhere, Ray Schroeder (2013) has written about the potential for MOOCs to extend a nostalgic vision of the US liberal arts college, while Scholz (2013) has considered how such institutions might learn from the MOOC development.

none the less a sign of the geographic fragmentation, the spatial disruption, of our times' (1991, p24). Nevertheless, campus nostalgia also reflects findings from previous research I have contributed to, which has highlighted the engrained educational assumptions and experiences that participants bring with them to subsequent MOOC activity (Ross *et al.* 2014).

An undefined 'humanness' predictably features prominently in the forum thread. Amanda comments:

The tour of this house made me realize why the tone of your Mod Po videos seems so genuine. Kelly Writers House is a welcoming place full of genuine faces where the individuals are recognised, but not more important than the poetry. The passion starts at the third floor and goes right though the garden.

The assumption of unadulterated access to individuals is striking here, despite the highly orchestrated arrangement of interviews in the tour video. Furthermore, the enthusiasm of the teaching team is notably described as existing exclusively within the limits of the KWH property, emphasising the supposed bond between human and place. This sentiment is continued with Meloney's comment:

the way that you and all of your students have gone out of your way to make all of us—in all our multitude—feel welcome and part of the process of learning is one of the most humanising educational experiences I've had in a long time, online or personal.

The visual display of the ModPo team, located in their supposed authentic setting, is assumed here to constitute a 'humanisation' of online education. This is particularly notable, given the admission of a multitudinous population of participants, and the suggestion of inclusion. This attests to the potency of the tour video; that the broadcast of the campus space creates the illusion of participation in the learning process.

Elsewhere the potency of the tour video appears to provoke responses that might be considered *more than human*. Gail posts: 'Great place. In my next life I'm going to study poetry at Penn and hang out there all the time'. This reference to an afterlife seems to situate the KWH as entirely unattainable; a space / time arrangement located in a future netherworld requiring a higher form of existence. Participant Milly also contributed a poem to the forum reflecting this sentiment:

And when this life of mine is lost

if the dear Lord allows,
you'll find me as a wistful ghost
in Kelly Writers House.

These responses demonstrate the highly charged quality of the KWH tour video, which appears to imbue the campus building with the qualities, not only of a transcendent sanctuary, but a space which is beyond the realms of the living. Here, the spiritual seems to easily align itself with the virtual in its denial of the materiality of the KWH. This serves to elevate the status of the elite campus space even further, as an entirely unreachable domain of even greater prestige. Significantly, these responses show how the place of the KWH is performed through the absence of ModPo participants. Its condition as a revered and sacred building is established precisely by the fact that they cannot ever visit in the physical world. Only attainable by ending one's material existence, the KWH achieves divine spatial dimensions which only inflate its elite status. This is another example of the immobility necessary for the ModPo course to achieve its own potent global dissemination. Just as it has always been, the distinction of the privileged educational institution is founded on a spatial exclusivity and a select capacity for co-presence. This is founded on the framework of the humanist subject, which constructs the very conditions of exclusion through an absence | presence dualism, and the rendering of space as static, regional and bounded.

While most comments in this thread were positive and enthusiastic about the tour video, one contribution expressed doubts:

I suspect I won't win a popularity contest for this but c'est la vie. As much as I enjoyed the tour, I think every discussion needs some conflict to keep it interesting. Yes, I know Kelly Writers House, like this course is open to everyone, but I did think of "I, Too" by Langston Hughes after I finished the tour.

Participant Cornelia appears to deliberately contest the dominant enthusiasm with this post, yet with a notably apologetic introduction²⁸. The work to which this comment refers is a poem about social injustice in America, featuring the narration of a man who is excluded from eating in company on the grounds of his race. Cornelia seems to be expressing notions of inequality here, where the video serves to indicate the marginalisation of MOOC participants from the authentic co-located community of the KWH.

²⁸ Nevertheless, upon reviewing the online archive of this forum thread in April 2013, Cornelia's comment was no longer present and assumed to have been deleted.

This signals the way the KWH tour bolsters the colonialist orientation discussed in chapter 4. Rather than challenging the wide-angle, ‘eye from the sky’ visualisations of global reach, the promotion of campus space in the tour video serves to sustain the MOOC platform orientation. The KWH tour, and its enthusiastic support in the discussion fora, upholds the unidirectional arrangement in which the educational institution is firmly rooted as the hub of the colonialist broadcast. Indeed, such a window to the campus further legitimises the corporate MOOC cause, which trades on the reputation and exclusivity of its elite partner universities. Simultaneously, ModPo ‘participants’ are produced and maintained as eternal visitors, granted access as passive audience to the video transmission and its images of privileged Ivy League real estate. From this perspective, the MOOC seems to be a technology which sustains, rather than overcomes, exclusiveness. As Barlett contends, ‘[w]e constantly reencounter this structure, whereby declared radicality in fact simply rehearses the most archaic aspects of what it purports to supersede’ (2013, p5).

The immutable mobile of MOOC pedagogy

The group discussion videos which form the primary content of the ModPo MOOC also construct a powerful spatial ordering of educational activity. These recordings take place within the ‘Arts Café’ area of the Kelly Writers House, and feature the instructor Al Filreis positioned centrally at a large table and flanked on either side by the ModPo teaching assistants (see fig 54 for an example). The location, arrangement and format of the discussions remain relatively consistent throughout the sequence of videos, although the combination of TAs is sometimes different.



Figure 54: The 4th ModPo discussion video on the Emily Dickinson poem ‘The Brain within its Groove’ part 1

As the primary content in ModPo MOOC, these videos create a dominant spatial and symbolic ordering of the practices of analysing poetry; one that, as we shall see shortly, becomes transportable. Firstly, clearly visible on the table are a collection of KWH mugs, items which were quickly noticed by ModPo participants. The following post appeared in a forum thread on the very first day of the course, Monday 10th September 2012, and prompted a discussion of some 91 separate posts.

Hello, I was curious if the mugs in your discussion videos are available for purchase. I want to support the Writers House and could not find them online. Are they an exclusive item or are they available to the general public? Thank you!



Figure 55: The image of the Kelly Writers House mug posted in the ModPo forum offering this item for purchase

By the 4th of October 2012, a new thread appeared in the discussion fora entitled ‘as you requested: ModPo KWH mugs now available!’, and included the details required for international purchase, and an image of the item (see fig 55). The importance of this souvenir as a symbolic and material grounding of the KWH can be traced in the subsequent discussions, wherein participant Vera remarks ‘I will march about my school proudly displaying THIS mug!’, to which the course instructor Filreis replies ‘Tell them you are learning "here" for "real."’. Here, the customised mug becomes a charm, the possession of which grants the holder a material connection to the genuine ModPo space, and thus an authentic educational experience. This reflects, I suggest, the practice of migrants who often acquire or procure some representation or portion of the visited place (Tolia-Kelly 2006). Sheller and Urry describe this as a spatial reassembling, practiced through ‘the material form of souvenirs, textures, foods, colours, scents and sounds – reconfiguring the place of arrival both figuratively and imaginatively’ (2006, p211). As symbolic dimensions of the video discussions, the KWH mugs become material relics of the hallowed campus building, allowing participants to reconstruct the sense of place in their own locality. The selling of

the mugs might therefore be understood as a material transmission, through which absent participants can infer a sense of presence.

Nevertheless, returning to the spatial arrangement of the video discussions (see fig 54), I suggest that a more significant form of transmission is taking place. The convenor is situated centrally, directs the conversation and line by line examination of the poem, and requests insights from each TA in turn. The analysis of poetry is clearly framed here as a regulated discussion, requiring a particular arrangement of participants and a distinct management of conversation.

It is important to stress here that while the subject of the video discussions is an interactive dialogue between the participants, the recorded footage itself is experienced by the viewer as a linear narrative. In its capacity for transmission it is therefore no different to the more typical video lecture, except that it is a group of people delivering the content as opposed to a solitary lecturer. Put simply, it is the video recording of a conversation, not a conversation itself. As such, the recording preserves the broadcast mode of the MOOC platforms, mobilising the KHW and the Ivy League institution of which it is a part, making it transportable to other locations through the platform technology. This is a one-to-many configuration, not the one-to-one or many-to-many often imbued with greater potentials for the mobility of information (Hannam *et al.* 2006, Sheller and Urry 2006). Such an arrangement can be further understood through the notion of the ‘immutable mobile’, proposed by Latour (1987) to describe how knowledge travels, and discussed by Law and Mol with regard to spatialities (2001). What Law and Mol insightfully show is that the immutable mobile involves two different spatial configurations: Euclidean space and networked space (2001). Moreover, what holds together in networked space as stable and immobile, is the very condition that allows mobility in Euclidean space. This is highly significant for the discussion of ModPo, for it is the very same stability of the video discussion arrangement that permits the straightforward and powerful mobility of the broadcast. In other words, the video recording holds together the pedagogical arrangement in a network that is easily transported over the distances reached by Internet infrastructure. This arrangement also reflects ‘scalar logics’ (Hannam *et al.* 2006, p5), in which the local is privileged as a model for global reach.

Therefore, while the pedagogical strategy of ModPo may be one of encouraging discussion amongst participants, it does so by demonstrating a tightly controlled and spatially consistent

arrangement of the university group tutorial, and broadcasting it through the video medium as an archetypal model. The ‘network’ of the discussion is firmly amongst the fortunate residents of the KWH, and while it may reach the far corners of the globe, it does so intact, and recipients are not part of the connected dialogue. Thus, I argue that if these video discussions do indeed ‘open up’ higher education to those not able to attend elite universities, they do so by preserving institutional spaces; freezing and solidifying them in fixed arrangements that can be exported elsewhere. The privileged seat at the KWH table is not only maintained here, but the intimate tutorial arrangement is also made highly visible as an idealised and desirable model for educational practice.

The potency of the ModPo video discussions can be traced in a participant-created video uploaded to YouTube in November 2012 and shared in the ModPo fora (see fig 56). The video features a group of three ModPo participants from Edinburgh, who chose to contribute to the course with their own discussion and poetry analysis. Significantly, the poem examined in this video is ‘Jist ti Let Yi No’ by Tom Leonard, a reworking of the ModPo week three poem ‘This Is Just to Say’ by William Carlos Williams, analysed by the teaching team in ModPo video number 23. Leonard’s poem translates many of the words and themes of William’s work into a phonetic Lowland Scots dialect, and describes the drinking of ‘Tennents Special’ Scottish Ale instead of the eating of ‘plums’ referred to in the original. It is a poem that very deliberately translates the Williams piece into recognisably Scottish themes.



Figure 56: Still from ‘ModPo Edinburgh 2012’, a video discussion created in by ModPo participants.
<http://youtu.be/sfgBe0i5BYs>

The Edinburgh video might therefore be considered a playful and shrewd critique of the ModPo MOOC, performing a local re-contextualisation of the American poetry curriculum. The subsequent analysis of the poem seen in the video emphasises national identity and cultural understanding as the underlying theme of the work, in which the poet is suggested to foreground a regional language and insight into local life. By discussing a poem that directly reworks the ModPo subject matter in this way, the Edinburgh video appears to challenge the promotion of the KWH as the authentic site of poetry education. The purposeful drinking and display of the Scottish ‘Tennents Special’ by the video participants (see fig 56), while specifically relevant to the subject matter of the poem discussed, might also be interpreted as challenge to the ModPo customised mug referred to previously. Rather than the touristic keepsake, the local brand of beer symbolises a connection with native practices and habits. This is, I suggest, a clear attempt to transpose the ModPo discussion format into something perceived as more genuinely Scottish, through the reconfiguration of course content, and the appropriation of symbolic features in the videos. Perhaps a challenge to the notion of being visitors to the University of Pennsylvania campus, these participants produce their own local version of ModPo as residents of Edinburgh. It might then be interpreted as a form of resistance to the power of the MOOC broadcast, a locally themed reconfiguration of the dominant institutional arrangement of educational activity.

Nevertheless, a further analysis of the spatial dimensions of this video reveals significant consistencies that are worthy of consideration here. The arrangement of discussants mimics the ModPo layout, with the male participant seated in the centre and the two female participants seated either side (see fig 56). The format and style of the poetry analysis is also imitated, with the performance to camera, the central figure appearing to lead the conversation, the drinking vessels prominently displayed, and the poem subsequently dissected and analysed in a similar fashion to the ModPo discussions. Therefore, while the context and poem are different, deliberately chosen to highlight local context, as a network space, the configuration is identical. If this is a resistance, it is to American poetry, not the spatial arrangement of the educational activity. This suggests not only a limit on mobility and travel to the prestigious campus, but also a limit on the structure of the educational experience MOOC participants can have. The video serves as an example of how the pedagogical relations modelled by the ModPo video discussions hold together as a stable networked space (Law and Mol 2001), transported intact from the KWH to the dwellings of the Scottish capital. This arrangement is not a dialogue between ModPo participants and the

teaching staff; it is the direct transportation of the stable dialogue model for replication by the distant populace.

Furthermore, rather than challenging the underlying notion of place, and the legitimacy of the local, the Edinburgh video reasserts an alternative privileging of place and setting. The elevated site of the KWH is merely translated and replaced with a different building, an alternative panel of discussants, and a substitute array of drinking vessels. The notion of space is still one that foregrounds the ‘local, anchored in the specificity of particular place’ (Usher 2002, p42). Furthermore, this stable and circumscribed setting appears to provide the spatial foundations for a sense of cultural distinction, reaffirming the intimate relationship between space and identity (Usher 2002). Rather than offering alternative visions of space, the Edinburgh video performs a potent and meticulous *re*-localisation of material and symbolic place, substituting the spatial ordering of the original site with a new cultural legitimacy, but in doing so, preserving the primacy of dwelling as the essence of identity. In other words, it is the humanist foundation that remains intact, and constrains the way space can be configured.

Moreover, it is not simply the arrangement of discussants and the routines of poetry analysis that constitute the immutable mobile of the MOOC. In order to observe merely as audience to the ModPo discussions, participants must possess the same stable network of technology: a computer connected to some form of Internet infrastructure. We might therefore understand the MOOC to necessitate invariant shapes of materials and technologies, or a hybrid arrangement of ‘humans and nonhumans that contingently enable people and materials to move and to hold their shape as they move across various regions’ (Sheller and Urry 2006, p215).

However, importantly, these are spatial configurations identical in their ability to receive and view the video broadcast, not necessarily to transmit their own, and shapes that may congeal and limit how poetry analysis is allowed to be conducted. This transfer of the pedagogical model demonstrates how the very mode of academic thinking maintains a rigid form through the ‘sedentary protocols of institutional reason’ (Braidotti 2011, p225). It’s not just university real estate which implants an authoritative boundary, but also the manner of thinking which it promotes. We can also therefore detect the control required to sustain the global education project: ‘the work needed to hold a configuration stable; ...the effort

required to create a wider network fit for the transmission of immutable mobiles' (Law and Mol 2001, p620).

A subsequent discussion in the ModPo fora provides a notable response to the group discussion videos. In a thread entitled 'Video discussions: not great', participant Minnie begins with the following post:

This is my first coursera course where the video is a discussion rather than a lecture. The format may work where the discussion participants are on equal footing in terms of education and experience -- I don't know -- but it isn't working as presented. Al knows where he wants to go and after he gets there I (mostly) agree with him but he doesn't need the students to accomplish this. I also think that the students' presence is an additional degree of separation between the instructor and me. I'm finding that watching the videos is not a good use of my learning time because I'm spending too much time filtering out the students and concentrating on Al. I am watching the students learn rather than learning myself and it's frustrating.

Here, crucially, the fixed and linear arrangement of the video recording is identified as the site of learning itself, rather than the relationship between the course content and the ModPo participant. Minnie locates the network of learning within the KWH, a set of connections that does not include her as a distant viewer of the video broadcast. The stability of the pedagogical shape has remained intact through the video transfer, yet as a solitary participant, Minnie appears unable to replicate the simulation of learning on offer. This post received a reply from participant Ned, who suggests:

I think that Al is modeling good Socratic method... the students dissent from Al's POV often enough to make me believe that even though he knows where the course is going, he does allow room for other perspectives.

Minnie's response to this emphasises her original claim:

It's a take on Socratic method that works better for the active participants but not as well for me, the observer. I don't feel (as opposed to think) that Al is asking me the question. The Socratic method is dialogue, not observation of dialogue.

The difference between a discussion and a videoed discussion are brought to the fore here, where the configuration of the latter excludes the audience within the dialogue. This may be highly significant, given emerging research on student experiences of video lectures. Adams

et al. suggest ‘xMOOC completers consistently described a unique and powerful sphere of intimacy that developed for them with their xMOOC instructor, most especially in the context of the pre-recorded instructional videos’ (2014, p12). While Minnie clearly expresses a reverence for the instructor, the claim that the discussion videos do not lead to learning appears to suggest that a sense of inclusion in the activity of the MOOC is lost. In other words, the pre-recorded discussion delimits the spatial network of dialogue, while the straightforward lecture may offer more of a sense of connection.

The instructor Filreis joined the forum thread with the following reply, which also reveals that participant Minnie is a known to him and a long-time supporter of the KWH:

when the Coursera folks approached me about their mode, I was intrigued by I said that I noticed their approach naturally favored the lecture and that I thought a humanities course (there were none on the Coursera roster at the time) should model a discussion of the sort that one would want to be continued and carried on in the discussion forums...Here that's no possible with 33,000. So we model with 8 or 9 people what can then continue with thousands.

This reveals the discussion strategy was an intentional challenge to the dominance of the video lecture, and a format thought to be more akin to practices in the disciplines of the humanities. Significantly, the one-to-many configuration of the broadcast is emphasised here, with the core dialogue stressed as the standard arrangement by which the broader cohort can engage with the course. Rather than challenge the underlying transmissive gesture of the MOOC video, this approach tends to reaffirm the authoritative status of the elite institution as defining both the spatial and pedagogical orderings of global educational activity. Where this leaves local educational institutions is unclear. As Massey suggests, ‘[t]he time-space compression of some groups can undermine the power of others’ (1991, p26), pointing to the potential of the MOOC video to dominate educational discourse due to the elite status of their partner institutions. The result of heightened mobility is a further isolation of those places not connected to the popular information flows. Further research in MOOCs needs to question whether ‘power over mobility and communication entrenches the spatial imprisonment of other groups’ (Massey 1991, p26).

This transportation of a fixed educational arrangement is the operational dynamic of the colonialist orientation discussed in chapter 4. This is not to suggest that the Edinburgh video discussed previously (see fig 56), or indeed any other response to the ModPo discussion recordings, simply mimics this model of Ivy League education in a straightforward way.

Reflecting the discussions of community in chapter 5, we can detect here the ways that the MOOC seeks to modify participant activity in its own image. It may not be direct replication, but rather an example of the way that ‘the integration of the globe reconfigures rather than supplants diversity’ (Edwards 1994, p11). Nevertheless, the point here is to highlight the under-theorised and under-explored fantasy of the broader MOOC agenda, in which the world is presumed to be a universal space of compliant replication. This mirrors precisely the spatial assumptions of modernism, in which the world is perceived simply as ‘a network for transporting invariant shapes: information, scientific findings, technological artefacts’ (Law and Mol 2001, p620). Thus the Edinburgh video highlights the way that educational patterns and spatial orderings can migrate and colonise in subtle ways through the global reach of the MOOC platform.

Conclusions

The dislocations of the discursive boundaries and categorical differences triggered respectively by the explosion of humanism and the implosion of anthropocentrism causes an internal fracture within the Humanities that cannot be mended just by goodwill. (Braidotti 2013, p143)

The disruption of authoritative and stable place bound up with the humanist doctrine, cannot simply be mended by broadcasting a romantic vision of elite campus space, pasting over the cracks in the corporate fantasy of universal MOOC participation. As one of the first humanities MOOCs, ModPo attempted to offer something different to the typical lecture-based and computer science related courses that dominated the Coursera platform at that time. However, as I have demonstrated, the privileging of the KWH as the authentic and legitimate place of educational activity grounds the course in a humanist arrangement of sedentarism, orthodoxy and elitism. ModPo does make possible unprecedented proximities - the Ivy League campus and globally distributed MOOC participants - however a problematic hierarchical arrangement prevails. If globalisation can indeed be understood as ‘the intersection of the global and the local’ (Usher 2002, p43), there appears to be little in the way of connection and juncture in the ModPo MOOC. Rather, the course preserves the global and the local as distinct, separate domains, and the campus is foregrounded as the assumed focal point of the world’s interest.

In this chapter I have examined the first instance of the ModPo MOOC, offered by the University of Pennsylvania in partnership with Coursera. I have shown how the course is

grounded in a specific department at the university, located at the KWH, and part of an already established interest in open community and online educational provision.

In order to analyse this arrangement I have drawn from spatial and mobilities theories. These analytic perspectives offer ways of viewing space as the product of relations and practices, rather than being static and inert, and encourage a focus on movement rather than a supposedly dominant sedentarism. I have suggested that a privileging of static and regional space is founded on a dualist arrangement which separates the humanist subject from environment and context. As such, the binary of absence | presence, and the condition of being admitted to authentic educational space is premised in a humanist framework that creates the condition of exclusion, and contradicts the ideals of openness that underpin the MOOC project. Spatial and mobilities theories therefore offer more inclusive ways of perceiving the space of the MOOC.

In the first analysis section I examined the forum thread ‘Al Filreis = Emily Dickinson?’ to show how a notion of authentic place was established at the core of the ModPo curriculum through the inclusion of the Emily Dickinson poem ‘I dwell in possibility’ (2014). I showed how the course instructor emphasised a conflation of the idea of ‘place’ with the KWH, and how this idea was largely endorsed by ModPo participants. I have suggested that this serves to maintain a hierarchical and concentric arrangement in which the KWH constitutes the core and authentic site of poetry education, while the MOOC itself is rendered ‘virtual’ and peripheral. This hierarchy is constructed by the humanist orientation that privileges place and dwelling as the authentic condition for education.

This was followed by an examination of selected scenes from the ‘Kelly Writers House Tour video’, in which I demonstrated the further establishment of this hierarchical spatial ordering. I have shown how the video emphasises notions of community and dwelling that attempt to establish a space of safety, comfort and nostalgia in the ModPo MOOC. However, I have argued that this promotion tends to reassert elite campus space as desirable, and offers of unproblematic admittance gloss over the substantial inequalities and immobilities, and issues of capacity, that prevent global populations from attending universities. While the MOOC promotion in chapter 4 infers the end of the elite institution, I have suggested that the ModPo tour serves to re-stabilise the campus in the face of the challenge of the digital, and the riskiness of globalisation. This may reflect the ‘desire for fixity and for security of identity in the middle of all the movement and change’ (Massey

1991, p26). Furthermore, I have argued that the video format itself freezes the elite campus as an untainted and idyllic location, preserving in code a stable and unchanging place distinct from the viewing audience.

I have also analysed responses to the video tour in the forum thread ‘ModPo video tour of the Kelly Writers House - brand new!’, I have suggested that participants tend to endorse the privileging of the KWH as the core place of the MOOC, often interpreting the tour as grounding or ‘humanising’ the course experience, and sometimes describing the building in spiritual terms that merely amplify its inaccessibility. This may reflect Massey’s contention that ‘place and locality are foci for a form of romanticized escapism from the real business of the world’ (1991, p26). Thus I argue that MOOCs demonstrate a very real student desire for the place of the campus. In this section I have also examined a critical response to the tour video, which I have suggested to surface an elitism and colonialism that is maintained beneath the spatial ordering of the ModPo MOOC. Therefore, rather than endorse the fabrication of campus space in the tour video, or dismiss student desire for authentic educational places, I suggest that continued research needs to engage more coherently with the complexity of spatial enactments in the MOOC. As Callon and Law have suggested, ‘[r]elations that imply size and distance are only two of the possibilities’ (2004, p9), yet these seem to be foregrounded in ModPo, and the broader MOOC project. A more productive approach, I suggest, might reflect ‘education as a spatio-temporal ordering of mobilising, mooring and boundary marking in the valuing and enacting of certain forms of subjectivities and practices’ (Edwards *et al.* 2011, p230).

Finally, I examined the ModPo video discussions as spatial arrangements of poetry education. I suggested the notion of the ‘immutable mobile’ (Latour 1987, Law and Mol 2001) as a way of perceiving how the arrangement of the video discussion is able to hold its shape through transmission, and thus establish particular ways of undertaking educational activity. I described the ‘ModPo Edinburgh 2012’ video created by participants in response to the core content of the MOOC, and showed how it imitated particular spatial orderings and the privileging of locality, while also acting as a critical response to the US curriculum. However, I have argued that the intense mobility and high profile promotion of the MOOC broadcast tends to reflect the colonialist orientation discussed in chapter 4. As such, the increased mobility of the ModPo broadcast also intensifies the immobility of local populations and educational institutions. The highly connected ModPo has the effect of

bringing the KWH closer to MOOC participants, yet it is a connectivity that simultaneously pushes other educational spaces further away.

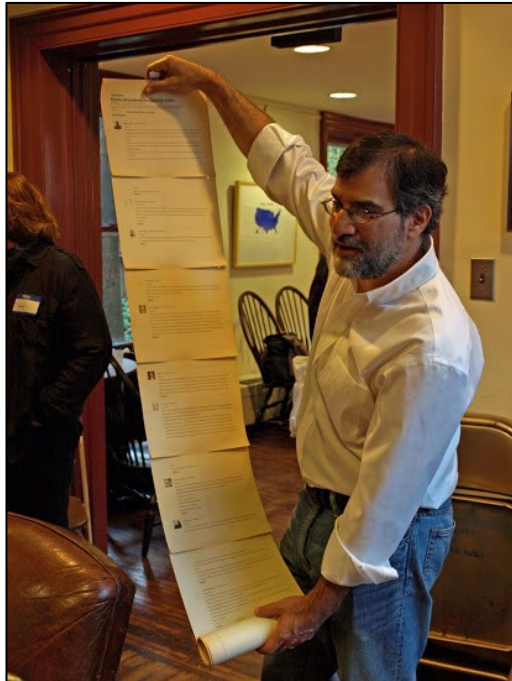


Figure 57: Image of ModPo instructor Al Filreis holding a print out of a ModPo forum thread.

The photo in figure 57 is one of a series taken at KWH live broadcast event that took place during the first instance of ModPo, and which were shared in the discussion fora. It shows ModPo instructor Al Filreis unrolling a large printout of an online discussion forum thread. It represents, I suggest, a rare infiltration of ModPo activity into the revered rooms of the KWH. It signals a more productive way to think about the space of the MOOC: not as maintaining the rigid distinctions between the physical and the virtual, but exposing their hybridities and permeabilities. Here the digital penetrates the KWH, (re)altering and (re)constructing it as a space of connections and relations with the outside world of MOOC participation. In other words, rather than a one-way broadcast, the image gestures towards more dynamic and co-constitutive spatial orderings, in which the campus and the MOOC might be considered to influence and shape each other; to intra-act. We might therefore see this unfurling of the discussion forum as complimentary to the souvenir mug discussed previously. Rather than a piece of the KWH being sold to enthusiastic participants, here we see a memento from the digital space reassembled in material form within the elite campus. It is this notion of productive contamination that will be explored further in the next chapter.

Chapter 7: Monstrous Openings in the EDCMOOC

Introduction

Everything exciting about MOOCs comes from their potential (if often fleeting) massive enrollments. And everything troubling and challenging about MOOCs reflects their massiveness as well. (Vaidhyathan 2012)

This chapter will examine ‘E-Learning and Digital Cultures’ (referred to as EDCMOOC), a course offered by the University of Edinburgh in partnership with Coursera, with a view to examining notions of hybridity, contamination and ‘massiveness’ in the context of the MOOC. As we have seen in chapters 4, 5 and 6, the MOOC habitually reinforces notions of disadvantaged global populations, learning communities, and self-directing individuals. Preserved in these orderings are the purity of a universal interest in education and the authenticity of a cohesive community, legitimised through the promotion of ‘place’ and underpinned by the maintenance of the humanist subject. Indeed, it is the persistent purification of the human subject that establishes and limits the scope of community, defines bounded space, and predetermines the participative modes of a global population. However, as Usher contends:

Globalisation can be seen as providing the grounds for, and indeed necessitating, a conceptualisation of the contemporary in terms of hybridity. Diverse others and other cultures cannot any longer be subsumed within a single universal narrative of modernity. Nor can they be seen as entirely separate, bounded or distinct. (Usher 2002, p43)

This chapter therefore attempts to consider notions of hybridity as a way of looking beyond the utopic narratives of the MOOC, discussed in the corporate promotion of chapter 4, the cohesive communities of chapter 5, and the idealised spaces of chapter 6. Rather than defaulting to the safety and purity of an orthodox and humanistic education, I will propose the seemingly irrational, unfounded and frightening practice of contamination as a productive way of engaging with the spaces, communities and subjects of the MOOC. Following Lewis and Kahn (2010), in this chapter I seek to reclaim the monster in the MOOC, and suggest that the very thing often excised from the discussion and practice of this emerging educational format, rendered as a terrifying outside to the sanctity of the closed learning community, may be immensely valuable in pushing our understanding into new and productive avenues. In the EDCMOOC, I suggest that this value might reside in the non-subjective ‘massiveness’ of the course, a complex factor emerging from the design, implementation and subsequent practices of participation. Thus, despite the firm foundation

of the individual around which the scaled activities of the MOOC platform are structured, ‘massive’ participation surfaced in unintended, subversive and destabilising ways.

I will begin with an overview of the EDCMOOC, outlining its structure, content and assessment methods. I will clarify a distinction between the design of the course and my subsequent research; however I will also describe how these roles were linked. The design of the EDCMOOC, amongst other factors, will be shown to have exposed the size and distribution of its participants, as well as the diversity and influence of the various technologies involved, in a way that more typical MOOC arrangements have not. While this was not necessarily the intention of myself or the team behind the design, I will contend that this ‘massiveness’ signals, not only the multiplicity and incongruity of global participation, but also the vast and complex non-human contingencies that are enfolded in the MOOC project. Elsewhere I have suggested a need for MOOCs to embrace the ‘massive’ (Knox 2013c, Knox 2014a)

Following this, I will outline a theory of the ‘monstrous’ in education through the work of Lewis and Kahn (2010), such that the ‘massiveness’ identified in the EDCMOOC might be understood in such terms. Lewis and Kahn (2010) use the figure of the monster as a way of discussing aspects of the human condition that are rejected as undesirable and external to the purity of the community, yet which return as factors always and already within life itself. In this sense, it is a critique of the purification practices of humanism that privilege rationality, autonomy and transcendent subjectivity, and deny and limit other ways of being, and ultimately enacting education. Therefore, looking again at such denials, at the monsters lurking on the edge of the community, may offer alternative ways of considering human involvement in the MOOC.

The first analysis section offers alternative ways of viewing the EDCMOOC space, by examining artefacts produced by students, as well as the platform pages and social media services utilised in the course. This will suggest notions of hybridity and non-human agency that trouble both the ideas of authentic and bounded educational place, as well as the notion of distinct and autonomous participants. Shifting spaces of ‘massive’ contamination are proposed as a more productive way of understanding the complex productions of the spatial and the subjective in the EDCMOOC. The key critical argument here is to contend that the drawing of a boundary between a purely human ‘inside’ and a monstrous non-human ‘outside’ blinds us to the sociomaterial entanglements of the digital.

This will be followed by a detailed analysis of EDCMOOC participant discussions about the experience of being in the course. These will demonstrate that notions of community are habitually positioned as the solution to the threat of the ‘massive’, revealing the uncritical acceptance of a humanist framework as the foundational rationale of the MOOC. Yet, within these very proposals, I will contend that the notion of monstrous and hybrid contaminations surface, revealing the potent resonances of non-human forces and mobilities, and pointing towards alternative ways of understanding the MOOC phenomenon.

Finally, I will examine images created by EDCMOOC participants for the ways in which they portray the experience of participation. As with the privileging of community, these images will be suggested to represent the humanist subject, often in positions of disorientation or seemingly under threat. I will contend that these signal attempts to retreat to the safety of a ‘pure’ human state, in the face of the ‘massive’ and highly-mediated participation of the EDCMOOC. I will suggest that such practices of purification tend to excise anything that lies beyond the subjective and the symbolic, thus limiting our understanding of the broader forces at work in the MOOC. I will offer alternative readings that suggest different notions of the hybrid relations that could emerge from MOOC involvement; ideas that challenge the sanctity and distinction of the humanist subject amongst the diverse material and technological flows of this ‘massive’ education.

The E-learning and Digital Cultures MOOC

‘E-learning and Digital Cultures’ (EDCMOOC), a MOOC from the University of Edinburgh in partnership with Coursera, was first offered in January 2013. It has subsequently been offered a second time in November 2013, however this analysis will focus primarily on the first instance. This is because it took place in the initial wave of Coursera offerings and captured responses and reactions at a time when the MOOC was as emerging as a largely unknown format. I have chosen to focus on this period because many of the participants were experiencing a MOOC for the first time, and their responses reflect the encounter with something new and different. As such, the dominance of the humanist subject as a framework for education is fully exposed, and as we shall see, it becomes the primary defence against the threat of a monstrous outside.

The EDCMOOC was a five week course intended to approach the subject of ‘e-learning’ through the lens of cultural studies, digital-, or cyber-culture. Rather than focussing on the

application of technology in education, this course was concerned with exploring the ways that popular culture has shaped our understandings of digital systems, networks and software (Knox *et al.* 2012). The course was divided into two blocks: notions of utopia and dystopia in the use of technology; and ideas related to being human in a digital age. A range of public domain short films and animations were used as the core EDCMOOC content, alongside a selection of open-access articles and academic literature. Participants were asked to respond to this material in personal blogs, the Coursera discussion forum, and a variety open of social media. Two live Google Hangouts were broadcast during the first and third weeks of the course, in which the teaching team discussed emerging topics and queries from student discussions. The EDCMOOC was assessed using the peer assessment functions of the Coursera platform, for which participants were required to create a ‘digital artefact’ - an image, video or web resource - that represented or examined any of the topics encountered during the course. Enrolment on the EDCMOOC peaked at 42,844, while 21,862 of these were calculated as being active within the Coursera pages, indicating a conversion rate of 51% (MOOCs@Edinburgh Group 2013). As shall be discussed below, however, the exclusive measurement of platform activity fails to capture the wider use of social media.

What may also be significant to this chapter are responses to the pre-course survey²⁹, in which 51% of respondents indicated that they were employed in teaching and education, and 86% reported their highest level of completed academic study as either undergraduate or postgraduate (Knox 2014a). Furthermore, a number of university teaching faculty blogged publically about participation (for example Young 2013), or integrated the EDCMOOC into their campus teaching (see Krause 2014). These indications of a highly educated and professional cohort suggest that participants of the EDCMOOC had some level of background knowledge about the course themes, the field of education in general, and perhaps some deep-seated convictions about how such educational practices should take place (Knox 2014a). Therefore, the subsequent outline of participant reactions to the EDCMOOC may provide a useful insight into the ways that educational professionals, or those with significance experience of higher education, perceive the emergence of the MOOC project.

Of most significance in this chapter however, is the suggestion that the EDCMOOC was designed to challenge the idea of a centralised and authenticated course site, and to foreground the dispersed, changeable, and sometimes troublesome, spaces of the web. I

²⁹ Number of respondents in the pre-course survey: 7585

make such claims with caution, and acknowledge from the outset my complicity and investment in this MOOC as one of the teaching team. This highlights the potential position of bias from which I can make assertions about the course. Nevertheless, it is important to make a distinction between the design of the EDCMOOC, and the subsequent research undertaken for this thesis. I developed the EDCMOOC in collaboration with team of colleagues at the University of Edinburgh, and while we shared an interest in theories of posthumanism, the specific new materialist grounding to this thesis was not part of the design process, or intended to feed into participant activities. Therefore, the concepts of hybridity and the ‘monstrous’ which ground this chapter, while influenced by the EDCMOOC design, are primarily theoretical areas that I brought to bear on my subsequent research of the course. However, it must also be stressed that the distributed design of the EDCMOOC played a significant role in producing the conditions through which such concepts became useful as theoretical frameworks for developing the posthumanist understanding of MOOCs in this thesis. In this way, I do not claim the design of the EDCMOOC to be necessarily superior to other strategies, or to have resulted in a course that manifested entirely as I intended. However I do suggest it produced a situation which revealed the hybrid, sociomaterial condition of the MOOC by avoiding the façades of cohesive community, as discussed in chapter 5, and straightforward access to the campus, as discussed in chapter 6. This avoidance was the result of exposing, rather than concealing the ‘massiveness’ of the MOOC, a point which I shall now elaborate.

I suggest that the EDCMOOC manifested in such a way as to expose the size and distribution of its participants, as well as the diversity and influence of the various technologies involved. It is this combination of huge participant numbers and complex, globally distributed technologies that I suggest to be a more productive understanding of the ‘massive’ of the MOOC. Rather than simply a large population of identical learners, ‘massiveness’ signals, not only the diversity and incoherence of global participation, but also the vast and complex non-human contingencies that are enfolded in the MOOC project. Thus, this interpretation of the ‘massive’ will be considered, following Lewis and Kahn (2010), to be the monstrous outside to the efficient and orderly narrative of MOOC participation. The inconsistencies of distributed populations and the influence of technological agency disrupt and contaminate the founding notions of unified learning communities and rational, autonomous individuals. It is this ‘noise’ of the globe that is continually excised through the reasoned practices of education, but which will be shown to surface again in the core activities of the EDCMOOC.

The manifestation of ‘massiveness’ was in part due to three important design decisions, although the effects of these plans were not necessarily intended by the teaching team (Knox 2014a). Firstly, the EDCMOOC was designed to centre participant discussion as the primary activity, through the invitation to blog about the course or use other social media to respond to the core material. Secondly, this student-created work was promoted as part of the EDCMOOC course content, principally with a blog aggregator which was offered as a central resource – this will be detailed below. Thirdly, there was no formal intention to divide EDCMOOC participants into sub-groups, although this was suggested as a voluntary and student-led option.

The foregrounding of participant discussion in the EDCMOOC was intended as a critical response to the establishment of the video lecture as the primary form of content in the typical Coursera offering (Rodriguez 2013), an arrangement that privileges transmissive pedagogy (Knox 2014a). As discussed previously, the resources curated by the teaching team were intended to provoke discussion, and were not considered to encapsulate the entire content, or indeed everything of value concerning the course themes. In this sense the core EDCMOOC resources differed from an orthodox video lecture which might be considered to ‘contain’ the content of a course, and were rather intended to provide the provocation for open-ended discussion and debate. Furthermore, student responses were made visible and included as part of the course content in ways that have been uncommon in the platform-centred MOOC offerings. The effect of this inclusion was the cumulative swelling of EDCMOOC content; the more participants responded to the core material, the more supplementary resources appeared in the form of blogs, discussions and tweets.

By the end of the first instance of the EDCMOOC, statistics from the Coursera platform indicated the creation of 1,430 forum threads, comprising of 8,718 posts and 5,146 comments (Knox 2014a). Posts were made from 2,615 individual participants, and 1,444 participants commented on existing posts (ibid). Outside of the platform, the blog aggregator generated 1,340 posts from 300 of the 900 submitted RSS feeds (Scott 2013). The student-created Facebook group attracted 4,820 members, and 1,945 enlisted in a similar GooglePlus network. A Twitter analysis indicated that 18,745 unique tweets using the #edcmooc hashtag were sent during the period 7th November 2012 to 14th March 2013, encompassing the build-up, duration and aftermath of the course (Knox 2014a). The peak daily number of tweets was 720 on the 16th of February (ibid). The inclusion of statistics

here is intended to demonstrate both the magnitude and distribution of EDCMOOC activity, incited by a course design that encouraged the production of content.

A further influence on the ‘massiveness’ of the EDCMOOC was the lack of formal guidance or prescription with regards to the formation of sub-groups. This meant that all aspects of the course were available to the entire cohort of enrollees, and all student-created content became part of the same body of course-wide material. This served to preserve the ‘massiveness’ and visibility of EDCMOOC activity, where more formal group allocation might have segregated and concealed particular content. What I suggest is significant about the EDCMOOC, is the way that this ‘massiveness’ surfaced as a key theme of the course, in addition to the topics and material about education and digital culture. Participants used the term ‘overwhelming’ or ‘overwhelmed’ 62 times in the Coursera discussion forum, 52 times in the post-course evaluation survey (Knox 2014a), and frequently in participant blog posts³⁰, revealing a notable anxiety directed at the amount of student activity and the magnitude of information generated. This kind of reaction has widely been reported in response to a range of MOOCs (see Waite *et al.* 2013, Haggard 2013, Parr 2013b).

As the following sections will demonstrate, participants of the EDCMOOC became attuned to the characteristics of this ‘massive’ activity, which infused, and sometimes engulfed, the course content. As such, much of the response and discussion was aimed at the activity of the course itself, rather than exclusively at the themes and ideas in the EDCMOOC resources. As suggested previously, this interest in the processes and pedagogies of MOOCs themselves may have also derived from the professional interests of the cohort. It is precisely this massive activity that I want to highlight here as a monstrous, non-symbolic, and irrational outside to the reasoned activities of meaning-making and dialogue in the cohesive community of the MOOC. Looking beyond organised group discussion or the rational progress of the individual, I suggest that it is the broader sociomaterial movements, spaces and flows of ‘massiveness’ that provide the most profound way of understanding the distinctiveness of the MOOC.

In the subsequent analysis sections I will examine the ways that notions of space, community and subjectivity emerged amongst participants of the EDCMOOC, as well as offer

³⁰ I precise figure has been difficult to generate here due to the volume and distribution of participant blog posts. While the EDCMOOC blog aggregator was able to collate voluntarily submitted posts into a single website, the mechanisms to undertake keyword searches was not available to me at the time of this research, and may be a technique to pursue in future research.

alternative interpretations that underscore the monstrous, yet productive, contamination of these ideas in the emerging domains of the MOOC.

The Monstrous

The monstrous is in other words the imaginative disorganization of categories and subject roles through which new democratic insurgencies stake a claim and through which a novel imagination dreams of impossible new forms of liberation, new forms of unrepresentable common life. (Lewis and Kahn 2010, px)

In this chapter I will draw on the work of Lewis and Kahn (2010) to propose a productive theory of the 'monstrous' as a way of engaging affirmatively with the MOOC. Lewis and Kahn use the figure of the monster as a way of considering those aspects of our human condition that are excised or rejected by the laws of the human community, yet which haunt the boundaries as necessarily facets of life (2010). The monster is thus an outsider that is always and already within. As Lewis and Kahn suggest 'the monster does not exist simply on the outside of the boundaries of community, class, or public. It is a complex externality that is outside as much as it is inside, both mythical and natural, both simultaneously close and distant' (Lewis and Kahn 2010, p10).

In this sense, the human community follows the logic of immunization, as discussed in chapter 5. Through processes of purification, at the core of which is the anthropological machine, a distinct humanness is produced by rejecting that deemed alien, unfamiliar or strange. As Lewis and Kahn suggest, '[i]t is precisely the inability to contain and organize life (and thus dictate its form and function) that is so frustrating for immunization' (2010, p108). In other words, despite the attempts to order MOOC participation into neat categories or horizontal utopic networks, such machinic functions always leave behind an excess that troubles the narrative of humanist education (Lewis and Kahn 2010). In this chapter, I seek to explore, not so much the purification practices themselves as discussed in chapter 5, but rather the non-human realm of the monstrous that has been expelled from the conventional sites of education. As such I follow the proposal of 'an *exo-public* pedagogy dwelling in the uninhabitable realm of the monsters at the edge of the map of the imagined world' (Lewis and Kahn 2010, p15 emphasis original).

Following from the idea that education is a form of violence that creates 'a residual foreignness or creatureliness' (Lewis and Kahn 2010, p60), I propose that the EDCMOOC can be understood to affect a return of this excess in the guise of 'massiveness'. As

described in the previous section, the profusion of EDCMOOC content and participation swelled the course, and as I will suggest below, pushed aside common-sense notions of community and individuality. In this way, we might productively view the ‘massiveness’ of the EDCMOOC in terms of monstrous non-human flows and material forces that are excised from the pure arrangements of the educational community, yet return here to haunt the attempts at rational self-direction.

One way to understand this may be with the concept of ‘affect’ which ‘operates as a dynamic of desire within any assemblage to manipulate meaning and relations, inform and fabricate desire, and generate intensity’ (Colman 2010). In other words, affect is a pre-subjective force, which while manifesting through individual sensation or cognition, is considered to be a much broader relational movement of materiality and energy preceding the confined activity of the humanist subject. As Thrift suggests, ‘affect is an attempt to avoid an easy psychologism. Put most simply ... it refers to complex, self-referential states of being, rather than to their cultural interpretation as emotions or to their identification as instinctual drives’ (2008, p221).

Therefore, we can understand the responses of EDCMOOC participants discussed in this chapter, not as subjective interpretations, but as the movement of the affect of the MOOC through its human constituents, ‘a *resonance* between sensations and sense, cognition and affect, critical distance and sensorial immanence’ (Lewis and Kahn 2010, p2). In other words, when I discuss the use of metaphors that have been used to describe the EDCMOOC, I consider these to be the surfacing of a pre-subjective intensity that is provoked and constituted by the ‘massiveness’ of the MOOC. The point here is to signal the broader material forces that cannot be reduced to the subjective, yet which are detectable within the ubiquitous concern for the individual and the ‘self’ in EDCMOOC discourse. Put simply, the monstrous flows and intensities of the EDCMOOC, interpreted as overwhelming and threatening to the individual and the human community, may be understood simply as *affect*; as a broader material dynamic of which we are a part. This relates directly to the discussion of foundational and self-organising material dynamics (see Coole and Frost 2010) in chapter 2.

Importantly, for Lewis and Kahn the notion of the monstrous is not simply an analytic category, or figure to be discovered through examination. Rather, it is also a sensibility and a way of thinking that resonates with the methodological approach of this research. Lewis

and Kahn propose ‘new affective, cognitive, and linguistic tools to intensify the generative, creative, and democratic powers of the monster against communal temptation/fear and capitalist desire’ (Lewis and Kahn 2010, p16). While the critique of capitalism is not the specific direction of my research, I am concerned with exploring the monstrous as a way of thinking beyond the subjective as the guiding rationale for education. In this sense, I view the notion of the monstrous as complementary to the methodological strategy of diffractive reading described in chapter 3. In other words, this chapter is not simply about *discovering* the monstrous in the EDCMOOC, but also about contaminating the *modes of thinking* about this emerging educational domain, and engaging with the affective flows and intensities of the MOOC. The critical potential of the monstrous is therefore in recognising the limitations of the humanist subject as the foundational model for the practice and pedagogy of open education; an approach which has avoided critique in MOOC-related literature so far. Furthermore, the notion of the monstrous offers a way to theorise human beings as open to change, in a much more profound and radical way than the humanist communities discussed in chapter 5. It is this view, beyond individualism and self-interest, beyond the closures of humanist subject, which offers genuinely new insights to the continued research of the MOOC.

Outside of bounded educational space

I have been inundated with Facebook posts since I joined this class. It sounds like there are oceans of tweets and other discussions out on cyberspace as well. Maybe I'm too old for this, but I need more of a road map. Please point me to the movie files for a start. Where are they? I'm feeling like I have been thrown into an abyss and have to figure out for myself how to navigate! Is this how a MOOC works? No structure at all? Even the acronym wasn't defined! (Anonymous, EDCMOOC forum ‘Thoroughly overwhelmed and dystopia’)

The above discussion board post from an anonymous participant exemplifies a common reaction to the distributed arrangement of the EDCMOOC. While I shall return to the metaphor of the ocean in the next section, the reference to a ‘road map’ and the desire for clear navigation are of importance here as allusions to spatial order. As discussed in chapter 6, stability and place appear foundationally important to this poster as the grounding for course activity and participation. Lacking the firm designation of a central and authoritative course space, the EDCMOOC provoked a number of significant responses that attest to the potency of place in education. Spatial ordering became a prominent activity that often sought to identify the boundaries of the course or structure its various facets into recognisable arrangements.

The EDCMOOC teaching team sent out an initial email communication two months before the official start date of the course and encouraged enrollees to independently make use of various social media services. This meant that, despite the central platform being restricted to a defined time of opening, course activity began much earlier in the wider public web. Indeed, before the official start date, a group of enrollees became active in creating a number of resources in social media and public web spaces outside of the Coursera platform. Initiated in November 2012 by Chris Swift, a public Google map became a prominent site for new enrollees to specify their location (see fig 58). Reflecting the eye-in-the-sky view of the globe highlighted in chapter 4, this map served to identify, not only specific locations, but also the limits of participation. Once again, the entirety of the earth is assumed as the starting point for attempting to understand the reach of the MOOC, and the legitimate territory of its presumed expansion.



Figure 58: Participant-generated Google map showing locations of EDCMOOC enrollees.
<https://maps.google.com/maps/ms?msid=200367259813652747543.0004ce913194a232d30d5&msa=0>

Just like the corporate promotion discussed in chapter 4, the world map masks the geographical, economic barriers supposedly overcome by the MOOC, visualising a flat plane of universal participation. However, we can also perceive the inadequacies of this spatial representation in the number of contributions, limited by Google to 1000 pins per map, just over 2% of the number enrolled in the EDCMOOC. Even this façade of the world could not contain the ‘massive’ involvement of participants and locations, and quickly became redundant. This attempt to chart the vast expanse of the EDCMOOC is indicative of efforts to identify and delimit the space of the course.

Echoing the rejection of the global and the privileging of university real estate as discussed in chapter 6, the deficient world map was followed by the creation of an ‘EDCMOOC school’ (see fig 59). One way to interpret this shift in spatial concerns is to suggest a retreat from the problematic expanse of the world-wide to the recognisable dimensions of the conventional educational institution. The ‘EDCMOOC school’ manifests as the attempt, not only to create a centralised location for all course activity, but to regulate and compartmentalise participation according to the spatial divisions of a traditional school building.

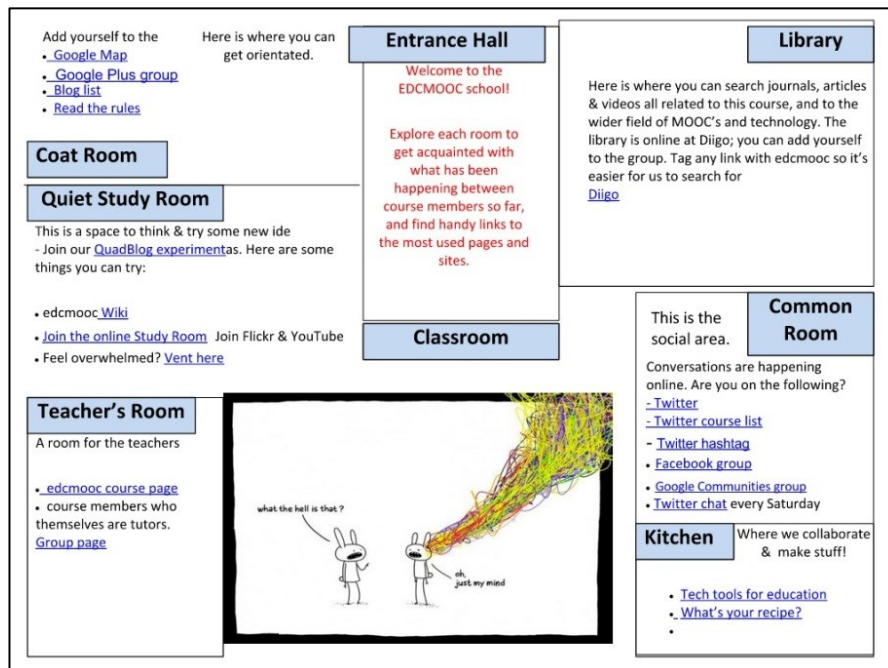


Figure 59: ‘The EDCMOOC School’ - a collaborative Google document created and maintained by EDCMOOC participants https://docs.google.com/presentation/d/16MGL8p_S4JUwluCfehzx_83W9tElj-VwTgqRInMlfiA/edit#slide=id.p14

Created a month before the start of the course and shared as a collaborative Google presentation, the ‘EDCMOOC school’ becomes a way to order the scattered and distributed websites and services utilised by participants (see fig 59). The image at the foot of the page provides a striking indication of the motivation behind this work, depicting the mind of one of the characters as a mass of entangled coloured lines. This reference to confusion, mayhem and turmoil reflects the broad sense of being overwhelmed with the ‘massiveness’ of the EDCMOOC, depicting the effects as a disordered and chaotic mind. This impact on the individual will be discussed further in the final section.

The spatial ordering of the schoolhouse emerged again in a ThingLink page created by user ‘ResourceLink’ (see fig 60). This more visually elaborate version depicts a similar structural arrangement within which specific activities and resources are located. Significant in these visualisations is the reference to a very particular, conventional notion of the school, much closer in size and design to a family home. Despite being created to organise resources and activities associated with an undergraduate level course with tens of thousands of participants, these school arrangements make a clear allusions to educational structures normally associated with small populations of school children. Furthermore, for a supposedly ‘open’ model of education, the schoolhouse represents a rather closed imaginary. Not only is this an example of extending sedentarist educational principles into the digital domain, but also one which appears to bring forth a nostalgic and sentimentalised interpretation of the educational institution. This is not therefore just a spatial reduction, but a retreat to the comforts and familiarity of an idealised and sedentary education. Significant in each is the inclusion of a kitchen, a space associated with the homely and domestic much more than with educational structures, and bearing remarkable similarity to the Kelly Writers House of the ModPo MOOC discussed in chapter 6. These schools thus represent the desire to organise, regulate and redefine ‘home’ in response to the ‘homelessness’ of unbounded and disorienting spaces (Usher 2002).



Figure 60: ‘Welcome to the EDCMOOC School!!’ – a Thinglink interactive image created by an EDCMOOC participant <http://www.thinglink.com/scene/346079571747012608#tbsite>

However, the services used to create these visual representations of the school are themselves web-based, requiring a complex entanglement human subjects and distributed Internet infrastructure in order to create and share such images. In the case of Google docs, used to create the collaborative ‘EDCMOOC school’ in figure 59, the storage and processing routines required to produce the presentation are distributed amongst the company’s cloud service (Strickland 2008). While such cloud services appear to provide a single document for access and editing by multiple users, there is a network of distributed servers behind this façade of centrality, which collaboratively store the required data and maintain the information to rebuild each edited version (Strickland 2008). In this sense, the image of the schoolhouse can be understood as ‘just the visible surface of a large realm of software, a complex amalgam of data structures, algorithms, packages, [and] protocols’ (Dodge *et al.* 2006).

Furthermore, both schoolhouse visualisations contained links to other resources, videos, and social media, forming a number of potential diversions and ruptures that trouble the solid boundaries of the school structure. Rather than the distinct and circumscribed space of the institution, the school houses might therefore be understood as wavering between presence and otherness, an orientation described as ‘fire space’ by Law and Mol (2001). This spatial ordering ‘turn[s] universality inside out’ where ‘paradoxically, the global is already included in the local’ (Law and Mol 2001, p620). Elsewhere Bayne *et al.* have extended the notion of fire space into distance education, proposing the idea of ‘campus envy’ discussed in chapter 6 (2014).

This permeability of the course space is reflected in the Coursera platform pages of the EDCMOOC, which will be analysed here as an example of the hybrid spatial arrangements of the course. Two interrelated aspects will be highlighted: the ways in which spaces are produced through movement and transition, rather than pre-existing as stable locations; and the entanglement of human users and non-human algorithms which create contaminated spatial orderings.

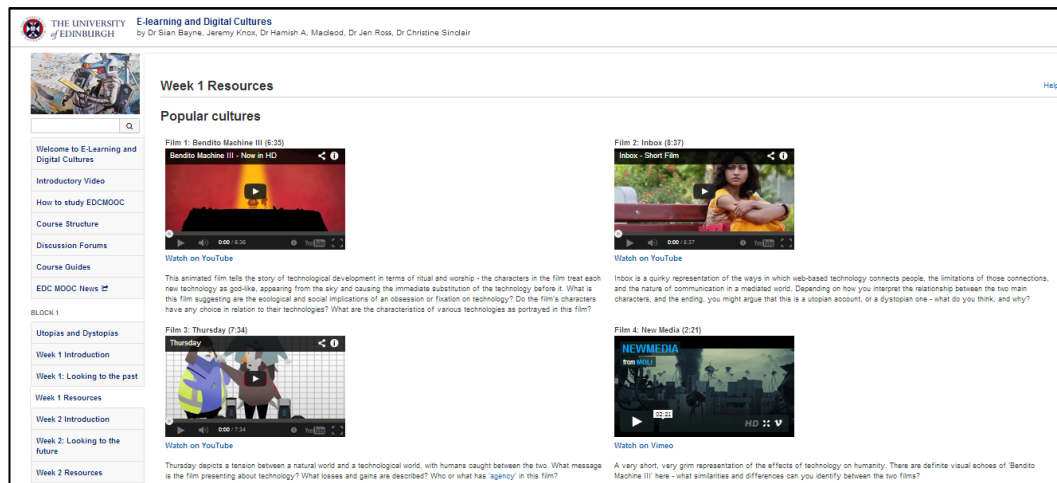


Figure 61: Section of the EDCMOOC week 1 resources page on the Coursera platform, depicting a range of embedded videos.

As discussed previously, the resources pages in the EDCMOOC contain embedded videos from services such as YouTube and Vimeo (see fig 61 for week one). In this arrangement, the course utilised content that already ‘existed’ elsewhere on the web, rendering the Coursera page merely a veneer that masked multiple and distributed social media spaces. Furthermore, rather than being a rigid container for course content, the Coursera platform thus served more as a conduit for the movement of participants to alternative sites and materials. As figure 62 demonstrates, many participants chose to engage in discussion activities outside of the dedicated Coursera forum, and began to post comments directly within the YouTube page hosting the video in question. While this demonstrates both participant mobility and the distribution of activity, it can also be understood in terms of contamination. These public domain videos, uploaded to services such as YouTube for reasons other than those of the EDCMOOC, began to be inundated with comments marked with the course hashtag (see fig 62). In this way, non-educational social media spaces became tainted with the activity of the EDCMOOC, altering the YouTube page to reflect the focussed dialogue of the course themes, and saturating the video with alternative meanings and interpretations. The outside has invaded the inside, while the inside contaminates the outside. The divisions between the authentic site of education and the external domains of the web appear inadequate for the EDCMOOC.

Therefore, what we see in practice here is not the pure space of the platform or the external domains of social media, but rather monstrous contaminations as each enter into the other. The space of the MOOC is thus hybrid and connected, rather than simply distributed or multiple (Knox 2014b). Participants engaged in activities by moving between locations,

rather than remaining within a single, authentic site, thus contributing to the production of course space through practices of mobility and mooring. However, the hybrid production of course space is not limited simply to the perceived movement of human participants. An examination of the structure of the YouTube page reveals the complex involvement of algorithmic processes in co-creating the spatial arrangement, alongside the activity of human users.

Firstly, the comments section (see fig 62) is organised and regulated by an algorithm that is designed to show contributions that are relevant to the logged in user (YouTube 2013). According to YouTube, this ‘relevance’ is determined by a number of factors, including ‘the video’s creator, popular personalities, engaged discussions about the video, and people in your Google+ Circles’ (YouTube 2013). Unsurprisingly, YouTube protect their commercial interests by providing little detail about how the algorithm actually functions. Nevertheless, this insight does reveal a complex process that utilises the Google Plus social networking platform, as well as a range of data from other YouTube users. Thus the arrangement of the YouTube comments is not fixed, but is rather produced from the distributed activity of multiple human users of Google Plus and YouTube, in addition to the workings of non-human algorithms with function below the façade of their user interfaces (Knox 2014c).

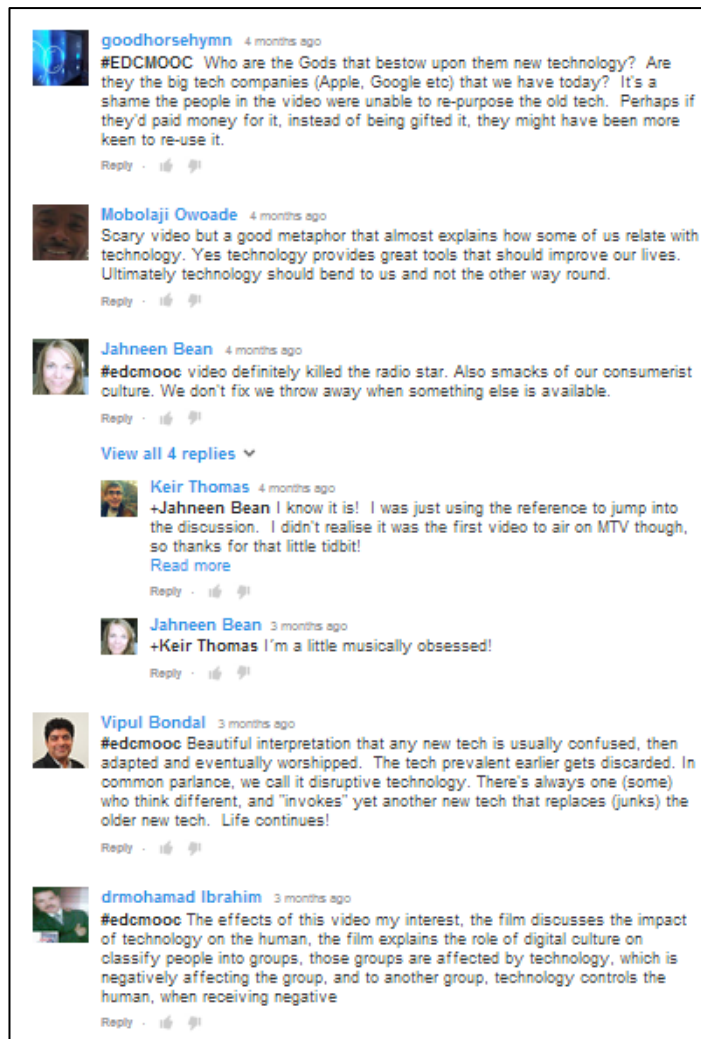


Figure 62: Section from the YouTube comments for the video 'Bendito Machine III', used as a resource in the EDCMOOC.

These various contingencies mean that the inclusion and precise order of comments will differ depending on who is logged in to YouTube, their previous activity, and that of people in their social networks. In this way, the structure of the section of the page cannot be attributed solely to the algorithm, the intentions of its authors, or indeed exclusively to the logged in user. Neither can it, I suggest, be defined simply as dialogue between the human participants of the EDCMOOC; it is a sequence of contributions that are also ordered by unseen algorithmic procedures. The comments also indicate a condition of mutability and flux, in which the spatial ordering is never static, but is persistently being recreated by the activity of human users and non-human systems. The romantic vision of the schoolhouse is corrupted in this example, where this space of dialogue in the EDCMOOC becomes a shifting amalgam of participation and computational process. Furthermore, this relational procedure demonstrates how human and non-human do not remain distinct in the YouTube

comments, but rather co-constitute one another in a hybrid and intra-active arrangement. What we might consider to be the ‘social’ dimensions of the dialogue are interrupted and re-ordered by the algorithm, which is itself conditioned by the activity of humans in the social network. This facet of the EDCMOOC is therefore more accurately understood as a sociomaterial enactment, in which the spatial characteristics of the course are produced through hybrid, co-constitutive relations of humans and non-humans. Any notion of a pure, nostalgic place of education seems to be wholly inadequate to describe this shifting space of contamination. As such the EDCMOOC might be understood as ‘a locality that always includes an uncanny confrontation with its repressed excess: the monstrous contaminant that undermines notions of public/private dichotomy’ (Lewis and Kahn 2010, p13).

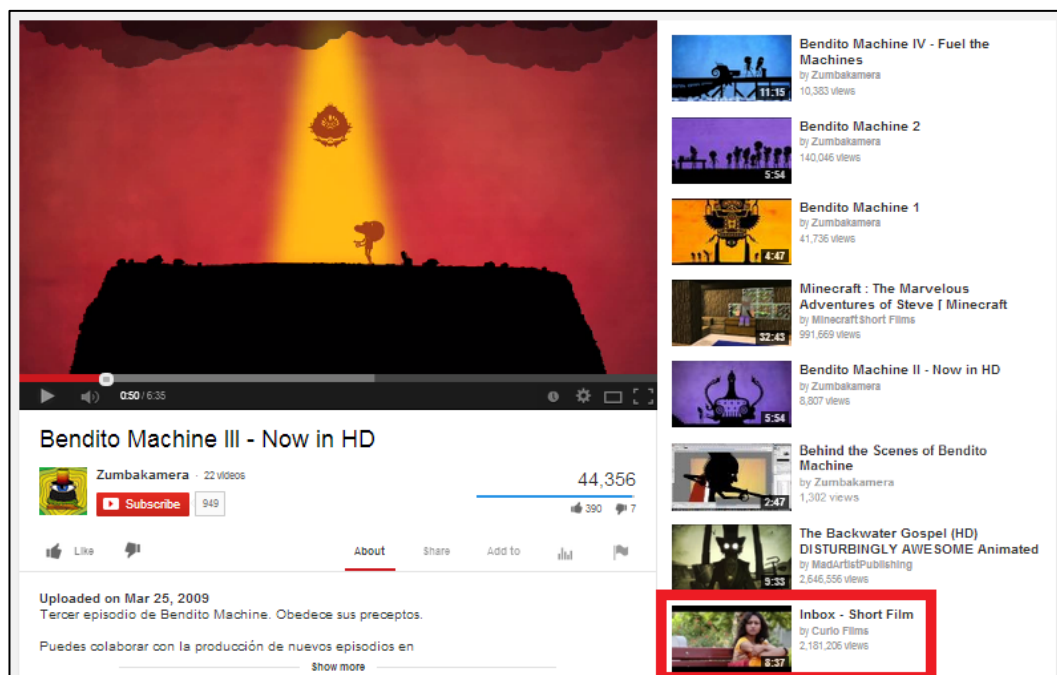


Figure 63: Section from the ‘Bendito Machine III’ YouTube page showing the ‘Inbox’ film appearing in the recommended videos.

Secondly, in similarly hybrid entanglement can be discerned in the production of the ‘recommended videos’ section, to the right of the YouTube page (see fig 63). YouTube uses a recommendation algorithm developed by Amazon which draws on various sources of information, including video meta-data, the prior activity of the logged-in user, as well as the preceding behaviours of other YouTube users who also accessed the video in question (Davidson *et al.* 2010, Linden 2011, Network20q wiki 2013).

In a similar way to the comments section, multiple and contingent relations structure the recommended videos according to shifting permutations of data and human behaviour (Knox 2014c). In this way, technology is not distinct, but rather ‘combine[s] in the enacting of space in particular ways through their assemblages with wetware (i.e. humans)’ (Edwards *et al.* 2011, p224-225). As a site for the activities of the EDCMOOC, it is not static, but rather produced continually through persistent, intra-active sociomaterial enactments. This seems to follow from Callon and Law’s contention that ‘[i]nstead of an infrastructure of social networks and knots, everything is in movement. Relations of presence and absence are being dynamically reconfigured’ (Callon and Law 2004, p7). Here, the EDCMOOC seems to manifest in movements between territorialisation and deterritorialisation, or mooring and mobilities (Hannam *et al.* 2006) that produce and delimit the fluctuating spaces of the course.

A further significance of this hybrid and co-constitutive relation between the EDCMOOC and YouTube can be seen in the highlighted portion of the ‘Bendito Machine III’ page (see fig 63) and the ‘Thursday’ page (see fig 64). The recommended videos indicated by the red outlines are other short films used as resources during the EDCMOOC: ‘Inbox’ in figure 63, and ‘Plurality’ in figure 64, also indicating ‘Bendito Machine III’ itself.

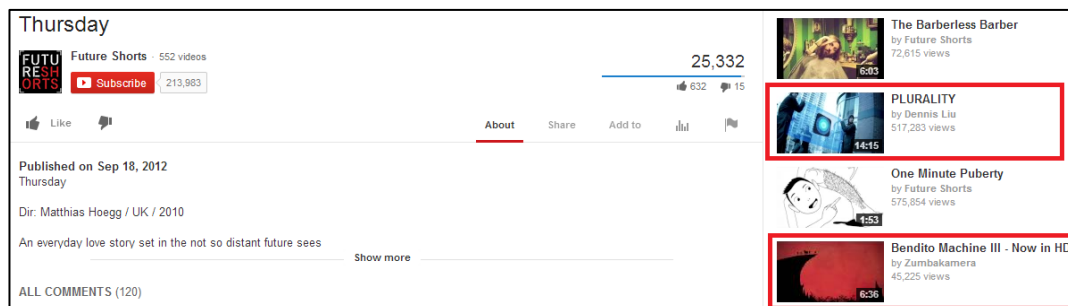


Figure 64: Section from the ‘Thursday’ YouTube page showing the ‘Plurality’ and ‘Bendito Machine III’ films appearing in the recommended videos.

As far as I am aware, these films were not associated in any way before their adoption as EDCMOOC resources, yet the presence of ‘Inbox’ within the recommended videos associated with ‘Bendito Machine III’, and the inclusion of ‘Plurality’ and ‘Bendito Machine III’ within the recommended videos on the ‘Thursday’ page, indicates that at the time these screenshots were taken, these videos were connected. Both screenshots (figs 63 and 64) were taken without a YouTube user being logged in, and thus the recommended videos can be understood to be influenced by the viewing behaviours of other visitors to the site, rather than myself as a researcher. I suggest therefore that the activities of EDCMOOC participants

shaped these associations by moving to and from the YouTube site, via the Coursera platform.

The films appear as recommended videos, I suggest, because they were viewed in sequence by a significant number of EDCMOOC participants, thus contributing to the algorithmic process that determines them as related. This may be the ‘global popularity’ aspects of the YouTube algorithm identified by Davidson *et al.* (2010, p294). The visibility of the ‘Inbox’ film in figure 63, and the ‘Plurality’ and ‘Bendito Machine III’ films in figure 64, demonstrates the complex processes of contamination produced by EDCMOOC activity, in which the spatial surfaces of the course are shaped by underlying sociomaterial entanglements. These processes are comprised, I suggest, of monstrous assemblages of absent and present humans, and intra-active algorithmic procedures that defy notions of the bounded and authentic educational environment. This example thus demonstrates a view of space, ‘not as a static container into which teachers and students are poured, or a backcloth against which they act, but as a dynamic multiplicity that is constantly being produced’ (Fenwick *et al.* 2011, p129).

Furthermore, boundaries between an inner sanctum of education and an external domain of social media are not only troubled here, but their very essence is called into question through the regimes of contamination. In this example, the activities of the EDCMOOC escape the confines of the Coursera platform and form infectious, hybrid relations with an outside. Simultaneously, this ‘outside’ might be considered already within the ‘inside’, as the core content of the EDCMOOC platform pages are comprised of embedded videos that exist elsewhere, in the public web.

The EDCMOOC News blog aggregator was one of the foremost spaces in the course (see fig 65), and also provides an important site for the discussion of hybrid spatial arrangements. Data from Google analytics indicated that the EDCMOOC News site was visited close to 1,430 times by 997 unique visitors (Scott 2013, Knox 2014c), suggesting a considerable level of engagement. Blogging was encouraged as one of the primary EDCMOOC activities, offering participants a space outside of the Coursera platform with some sense of ownership, as well as embracing the distributed structure of the public web as part of the course arrangement (Knox 2014a, 2014c). However, the problems of dispersed content were also recognised, prompting the development of an aggregation process, considered to harness the benefits of both distribution and centralisation (Knox 2014c).

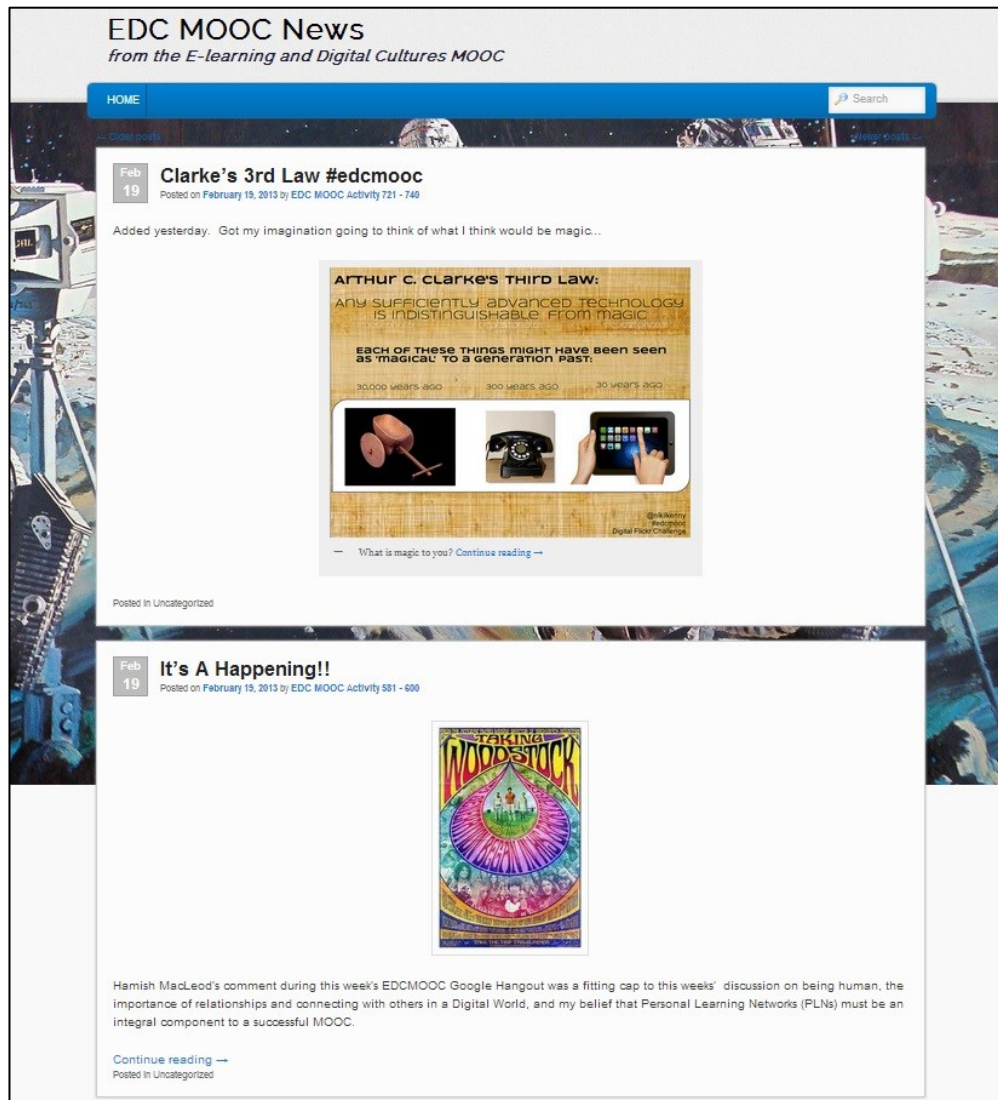


Figure 65: The EDCMOOC News WordPress site, showing two posts aggregated from distributed EDCMOOC participant blogs

This bespoke system was developed by the EDCMOOC teaching team alongside colleagues from Information Services at the University of Edinburgh (Scott 2013), and influenced by successful examples from previous MOOCs (see Downes *et al.* 2011). The EDCMOOC News used a number of freely available web tools to collect, organise and display posts from the personal blog sites of voluntary participants. The blog aggregator consisted of three primary elements: a Google spreadsheet and web form allowing participants to submit the RSS feed to their personal blog; 48 separate Yahoo Pipe instances, each collecting 20 RSS feeds from the spreadsheet and filtering and sorting these inputs according to time and date respectively; and a WordPress blog, complete with the FeedWordPress plugin, arranged to display truncated sections of the aggregated posts (Knox 2014c, see fig 66).

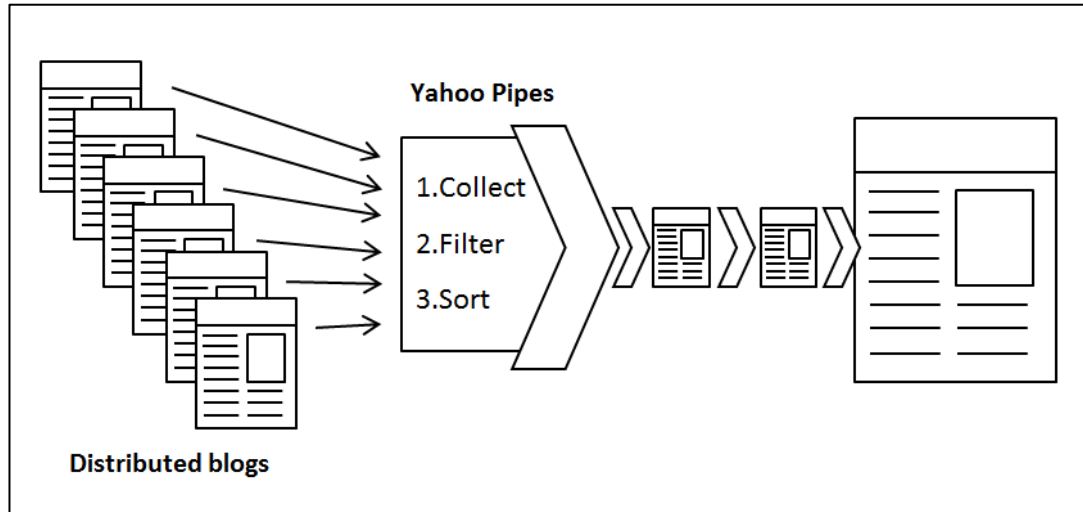


Figure 66: Diagram representing the functions of the EDCMOOC News blog aggregator

This exposition and the following analysis are intended to counter the tendency to ‘blackbox’ technologies in education (Fenwick and Edwards 2010, Edwards and Carmichael 2012), concealing the components, relations and dependencies which allow them to operate.

Reflecting the discussion of YouTube above, rather than simply constituting a static space or web page in the EDCMOOC, the blog aggregator can be understood as the entwined relations of participant activity and algorithmic process. However, it is crucial to highlight the contingent way in which such spaces are produced; manifesting distinct inequalities and power relations. The EDCMOOC News provides a better example of this than YouTube due to my deeper insight and knowledge of its technical development.

Merely identifying hybridity and contamination in the production of space is, I suggest, not enough, and the following analysis is intended to examine how particular relations form, and others do not. Specifically, posts appear in the EDCMOOC News through processes which privilege and exclude, rather than offer an egalitarian network devoid of power differentials. This follows from the notion that fluidity and mobility are analytic not ideological categories (Edwards *et al.* 2011), and thus are able to surface inequality as much as they are able to propose emancipatory spaces. Thus, such an approach is not about advocating an uncritical and romantic retreat to the nomadic (Lewi and Kahn 2010, Sheller and Urry 2006, Hannam *et al.* 2006). A number of factors contribute to the ordering of posts in blog aggregator’s WordPress page (see fig 65), however the two highlighted here have particular significant for the discussion of contingency and power. Firstly, the Yahoo Pipes instances are programmed to fetch posts published within 72 hours of the process being run (Scott 2013),

limiting collection to those deemed most recent (Knox 2014c). Secondly, the WordPress site displays aggregated posts in discrete pages, each regulated to accommodate 100 posts.

These procedures produce a hierarchical aggregation that privileges particular posts over others according to published date. The significance of this ordering is suggested by statistical analysis of visitors to the EDCMOOC, from which it is claimed '[h]alf of the visits to the site were from people who had visited before and almost everyone only visited the first page of the site' (Scott 2013). This privileging of the initial page meant that the first 100 posts within the EDCMOOC News had a much greater likelihood of being read, thus contributing to the dialogue proposed as the key activity of the EDCMOOC (Knox 2014c). However, this indication of reading habits also highlights the way in which the blog aggregator contributes to the exclusion of many other posts by displaying them on separate pages not immediately visible to participants visiting the EDCMOOC News. If this is indeed a hybrid space of human and non-human relations, or a monstrous contamination of educational content, it is certainly not utopic, or an escape from systems of hierarchy and privilege.

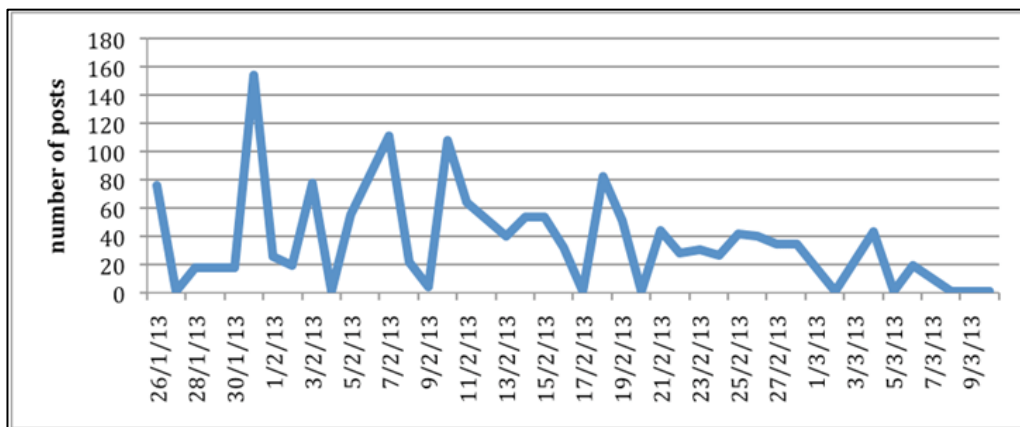


Figure 67: A graph showing the rate at which posts were added to the EDCMOOC News blog aggregator (Scott 2013) <http://edcmoocteam.wordpress.com/2013/04/09/nothing-new-under-the-sun/>

Moreover, when we examine the wider context of time zones, the particulars of this inequality become clearer. Figure 67 displays the frequency at which participant posts were aggregated into the EDCMOOC News WordPress site (Scott 2013). This graph indicates high volumes of posts being sent roughly every 48 hours, with three of these procedures involving over 100 posts at a time (see fig 67). This demonstrates, I suggest, not only the high volume of contributions, but also the speed at which posts were demoted to the less prominent pages of the EDCMOOC News and away from the principal site of engagement and interaction (Knox 2014c).

Given that the procedures involved are programmed to operate according to specific times - that is, the date of publication attributed to a particular post, but also the scheduling of the aggregation process - the time zone in which a participant is located will also be a determining factor in the post being displayed on the front page. In other words, the closer the publication time of a particular post is to the time at which the aggregation process runs will increase the likelihood of it being ordered within the first 100. Significantly, therefore, I suggest that EDCMOOC participants working within the same time zone as the course, and the operation of the EDCMOOC News (GMT), may have been at an advantage with regards to their posts appearing on the front page (Knox 2014c). The global distribution of EDCMOOC participants (MOOCs@Edinburgh Group 2013) suggests that those within the GMT area were a small proportion of the total cohort, thus indicating possible disadvantages deriving from geographical location. In this sense, 'what happens in the hyphen of space-time' (Usher 2002, p42) is crucial.

The spatial ordering of the EDCMOOC News is not only comprised of contingent relations between human participants and a range of web-based tools, but also the broader implications of where people might be contributing from. Rather than simply negating the barriers of time and geographical distance, we can see here how such measurements are built into the very technologies often assumed to subvert them. Therefore, I suggest that while the EDCMOOC News can be considered to hybridise educational space, combining distributed content through monstrous processes of non-human automation, it also does so in ways that exclude, conceal and privilege. This is therefore, I suggest, an example of the ways that hybrid space is not essentially emancipatory, but is as likely to be colonised by broader systems that produce inequalities³¹.

Calls for cohesive community

When all boundaries are being challenged, there is a desire to retreat into the "safety" and "familiarity" of the anthropocentric community under

³¹ Shullenberger aptly addresses two examples of this. Firstly, Coursera have been adept at colonising publically funded institutional spaces, such as the New York Public Library, for its own profit-seeking activity, (Shullenberger 2014). Coursera's 'Learning Hubs', which utilise existing institutional spaces which provide access to courses and allow attendees to 'participate in interactive learning sessions with facilitators in their local area' (Coursera 2014e). This is a clear example, I suggest, of capitalist practices bending to accommodate and exploit hybrid territorialisations of space. Secondly, Shullenberger suggests that Coursera's recent Global Translator Community may use 'AI algorithms that improve automated translation software through the aggregation of human-generated models' (2014). In other words, the volunteers doing the translating work within the Global Translator Community (Coursera 2014f) may also be working to improve the algorithmic processes that ultimately devalue their work even further.

threat of invasion by monstrous outsiders, foreigners, or strangers. (Lewis and Kahn 2006, p6)

Confronted with such proliferating and mutable spaces, swelling with contributors, algorithmic influences and content, many participants began to express the desire for community³² as the organising principle with which to engage in the MOOC. Where the notion of community was proposed as a solution to the ‘massive’ of the EDCMOOC, two key factors tended to be highlighted: small participant numbers, and a logical, regulated structure. However, within these calls particular metaphors and allegories begin to emerge which attempted to describe the ‘massiveness’ of the EDCMOOC. Their significance lies, I suggest, not in the extent to which they accurately represent or illustrate the condition of the MOOC, but rather in the way they reveal, in a non-representative way, the non-human movements and forces at work in this course. In other words, the metaphors discussed below are suggested to be, not simply subjective accounts from EDCMOOC participants, but rather expressions of the affective encounter with the material intensities of ‘massiveness’.

Calls for group allocation were widespread. In a forum thread entitled ‘Chill!!! It's just another MOOC’, participant Mandy contends, ‘Whoever said moocs had to be massive? learning communities work better when the study groups at least are more manageable, rather than expecting people to sink or swim on a global scale’. Here, not only is the premise of the MOOC questioned, but the idea of community is also established as consisting exclusively of small groups of individuals. Crucially however, we also gain a glimpse of what the common sense of the community is being positioned against: a fluid global expanse requiring a demanding navigation. To ‘sink or swim’, I suggest, offers some ways of thinking about how individuals might enter into immersive or intra-active relationships with ‘massive’ activity. However, the response is to withdraw from the encounter, ‘retreating from the shock of affective stimulation and collective becoming into the safety of the ontological purity of the community’ (Lewis and Kahn 2010, p3). In a further section from the quote above, Samuel suggests:

[p]eople will connect to a community and learn but there has to be a community ... you should strongly think of breaking MOOCs up into smaller learning communities where people can know each other...I think maybe 24 to 36 people in each "tribe" would be good.

³² In addition, the EDCMOOC feedback survey revealed substantial interest in ‘community’ from respondents. In response to the question ‘What did you hope to get out of the course and did it meet your expectations?’ 1016 from a total of 1684 answered ‘to become part of an online community or to meet new people’. Despite the focus on negative reactions to ‘massiveness’ here, 510 of these respondents indicated that the EDCMOOC met their expectations for community, while 275 suggested that it exceeded it.

This response naturalises community as the authentic arrangement for learning, the term ‘tribe’ suggesting a native or inherent tendency to form groups. This sentiment was reflected elsewhere, and frequently related to the magnitude of participation and the volume of information. Participant Lee started a thread entitled ‘Lost in forums’, which began with the concern, ‘[d]on't we need to be marshalled into moderate size groups, otherwise the number of inputs is overwhelming?’. Many commenters agreed, with propositions such as that from Drusilla: ‘Suggestion: that the course automatically chunk people into working groups of about 20 which can tweet, and forum and judge work together’. Contributor Charlie also suggested, ‘I am really enjoying this course, but I think that it is important to acknowledge that it is better to have a reduced size classroom than a MASSIVE one’. Other threads revealed similar sentiments, such as that entitled ‘Taking the M out of the MOOC’, in which Louisa asserts, ‘I'm reading a lot of posts about being overwhelmed, which is how I feel in a nutshell. I'd like to put forward a proposal for a RSOOC (Reasonably Sized Open Online Course)... any takers?’ The ‘massive’ of the MOOC is not only being rejected here but replaced entirely. Notable too is the suggestion that rationality is the determinant of group size, reflecting the notion that the ‘human community is privileged as a “hero” capable of “taming” or “killing” the irrational beast using the tools of reason’ (Lewis and Kahn 2010, p5). The reduction of student numbers appeared to be a common sense and unquestionable solution. Reflecting on the experience of the EDCMOOC, participant Kelcym blogged:

Do I take the easy way out and become a silent observer just doing the bare minimum interaction based on course content. Or do I continue to build smaller networks that help me achieve a degree of satisfaction in connecting with interesting people trying to do the impossible – handle social networks at large or massive scale. (Kelcym 2013)

Strikingly, only two options seem to be available to the MOOC participant in this scenario, either default to a role of ‘lurking’, as discussed in chapter 5, or become more involved by forming small groups or networks of communication with others. Large streams of information and activity are positioned as aspects that have to be controlled, and it is the reduction to recognisable community that is proffered as the lone solution. This reflects precisely the conditioning that the humanist subject places on the ways participation can be understood in the MOOC, as discussed in chapter 5.

Alongside the calls for subgroups and the reduction of participant numbers, guidelines for community organisation were frequently recommended as the remedy to ‘massive’ participation. A particularly striking example from a collaborative blog space stated:

‘[p]rovide a place for cadres to form’, and ‘[e]ngage more tech savvy folks to lead cadres’ (Anonymous 2013). The strategic response is explicit here, adopting activist language to suggest a rigid regime of training. The systemisation of community is proposed, through which outlying participation is normalised by more experienced members, reflecting the discussion of legitimate peripheral participation in chapter 5. Rather than notions of egalitarian, horizontalised networks of participation, the community appears hierarchical in this description, requiring training and progressive movement towards the centre. Training in the use of technology is regulated, and in the same sense as discussed in chapter 5, modes of participation are thus colonised, banning that deemed illogical or irrational.

The practice of ‘quad-blogging’ also emerged amongst participants of the EDCMOOC; a strategy for group formation in which ‘each blogger was to be a featured writer for a week, and the other three would focus on commenting, and extending discussions beyond the quad members, by promoting the featured blog and inviting more visitors through other social media’ (Towndrow *et al.* 2013, p1). This shared blogging arrangement was suggested ‘to create a strong sense of community in an otherwise potentially chaotic and random collective’ (Towndrow *et al.* 2013, p1). The quad-blogging strategy thus exemplifies the attempts to reduce the ‘massive’ of the MOOC to a recognisable community of individuals, each enacting a predetermined routine of group membership. It is a formal tactic designed to eliminate the perceived threat of the ‘massive’ by regulating activity in a formal community setting, systematically excising randomness and chaos. A significant aspect of the peril of the ‘massive’ is the suggestion that the individual will not be heard or responded to amongst the vast flows of information. Thus the formation of a PLN (as outlined in chapter 5) is highlighted as a major benefit of quad-blogging (Towndrow *et al.* 2013), where ‘you get an audience and respons[e] in this big mess of information’ (Asbjørn 2013).

In this way, notions of community were often positioned as a replacement for the problematic position of the teacher in MOOCs, a role also side-lined by advocates of connectivism (Ross *et al.* 2014). Forum contributor Samuel claims, ‘[a]lthough a MOOC is massive if the people have an understanding that the culture of community is important then you will not have the sense that people are waiting in the classroom with their hands up’. Rather than considering the community in terms of collective interests or activities, here the MOOC population becomes simply the means of providing feedback to the individual, such that their personal anxiety is not provoked. This reflects the articulation of the PLN discussed in chapter 5, where the connectivism notion of the network was shown to support a

self-serving individual, rather than work towards collective purposes. I will return to this concern for the individual in the next section.

These reactions to massiveness default to the community as the immunisation of an external world perceived to threaten cohesive and orderly educational practices. This is the positioning of education as a transcendent and sterilised activity, protected from infections and impurities of a diverse, discordant, and irreducible populace. Where community is claimed to be the solution to the broadcast education of the MOOC, the diversity, range and uncertainty of global education is firmly rejected. Faced with the difference, opposition, and energy of a population imbued with multiple interpretations and expectations of educational practice, the solution here appears to be a relapse to the safety and parochialism of the bounded community. This reflects Esposito's broader paradigm of immunization, in which it is claimed that the 'calls for immunized identities of small states are nothing but the counter-effect or the crisis of an allergic rejection to global contamination' (Esposito 2008, p50). However, within many of these appeals for community, clues to a way of understanding the turmoil of 'massive' participation are perceptible. In the forum thread 'The dystopian tendency of MOOC's', Participant Samuel suggests:

MOOC's are massive and there is lots of technology and there is a tendency for them to counter the very purpose of MOOC's which is to allow people to learn... Since MOOC's are these massive technological Leviathans then you need to counter it with something else, something that humanizes them. I think the first thing is understand that to do this first and foremost a MOOC has to be a ****community****.

This response frames the 'massive' of the MOOC, not only as a counterproductive to the processes of learning, but as a threatening external force, against which the community is the heroic solution. Described as a miscarried educational endeavour, here (the MOOC as) 'the monster is reduced to nothing more than an allegory of *human* system building gone terribly wrong' (Lewis and Kahn 2010, p6 emphasis original), for which the solution is to purify the humanness of the response. Faced with 'massive technological Leviathans' the remedy is to forge a community capable of courageously overcoming the monster, and reinstating a humanist subjectivity at the core of the educational enterprise. Of additional note here is the 'purpose' of 'allowing people to learn', reflecting the idea that '[l]earning is often positioned as the simple service response to globalised complexity and uncertainty' (Edwards *et al.* 2011, p230). This chapter is intended to ask if MOOCs can be perceived or understood in ways other than merely servicing the needs of human learners. This is not to suggest that the MOOC does not or should not allow people to learn, but rather to signal a perspective that

releases education from being understood as functioning exclusively for human ends. To gain a richer understanding of the MOOC, and to facilitate better learning from them, I contend that we need to consider the myriad ways in which they function, not just those that overtly facilitate orthodox ideas about community learning.

In this sense, a focus on the ‘leviathan’ of the MOOC may be productive. In analysing the following comments, the persistence of notions of the ‘massive’ will be highlighted; a monstrous outside that cannot be fully incorporated into the human community or brought under control through the established routines of rational dialogue. These descriptions of overwhelming participation, I suggest, expose a different manifestation of the MOOC, one that alludes to an irrational and non-human space that exists beyond the confines of community and the boundaries of the rational subject.

Participant Margaret relates the sense of being overwhelmed directly to educational theory, suggesting ‘[t]he "massiveness" is real obstacle to interaction and constructivism practices. Although this is a community of interested parties, we're all like we're wandering around a big airport picking up bits and pieces’. A clear distinction is made here between the structured dialogue and interaction of learning communities and the distributed and unregulated activity of the EDCMOOC, rendering the latter incompatible with this mode of learning. Strikingly, however, the analogy of an airport is used, surfacing notions of mobility and travel. The airport is used to imply impersonal, ‘soulless’ space, outside of the comforts of the human community, indicating a different realm of functioning that exceeds a human concern for learning. Significant in the airport metaphor is the loss of autonomy of the individual, rendered passive by the rigid routines of movement through prescribed zones dictated by enforced security measures and the strict scheduling of travel. Just as one is obliged to submit to the procedures of the airport, so the MOOC participant is framed here as subservient to the flows of depersonalised information. I will return to this concern for the individual in the final section.

Themes of noise and water³³ were particularly prevalent in responses to the EDCMOOC. In a similar way to the metaphor of the airport, these accounts tended to construe course activity as an external force too great to understand or control, or as a hazard to the expectation of organised dialogue.

³³ Interestingly, the recent report from the Department for Business Innovation and Skills in the UK also uses the analogy of potent fluid, however on a decidedly different scale. Haggard suggests MOOCs are a ‘tonic for an ailing education system say some, a poison for Universities say others’ (2013, p13).

The volume of information was frequently translated in auditory terms, one survey commenter suggesting ‘the volume of comments and postings became noise and interfered with my learning’. This positions the magnitude of activity in the EDCMOOC in opposition to the learning process, as something which disrupted an authentic engagement with the course. Another survey respondent claimed ‘[t]he “noise” from all the students who wanted to shout their opinion (sometimes without listening the previous comments) was unbearable’. The numbers involved in discussion appears to create a sense of disorder here, where individual posts are perceived to take on a louder volume due to the lack of organised dialogue. The idea of ‘noise’ was sometimes more overtly described as worthless, one survey comment suggesting, ‘[i]t felt at times like the course was generating a lot of online pollution. At times the volume of online content created felt a lot like landfill’. Additionally significant here is the lack of value placed on peer contributions, countering the emphasis on community learning and the sharing of content often promoted by advocates of connectivist MOOCs (Knox 2014a). Other survey comments described collaboration in more violent terms, contending ‘[t]his was not a community--- more like a cluster bomb. Comments felt like missiles shot at random by the individual posters’. The lack of orderly discussion is framed here as the violent menace of weapons of mass destruction, threatening to destroy the idea of cohesive and orderly discussion.

In conjunction with volume, descriptions of dangerous natural forces, movements and energies emerged as a prominent theme. One survey comment suggested, ‘the MOOC comes at you like a tsumani & simply swamps you’. In the forum thread ‘Thoroughly overwhelmed and dystopia’, Mannie writes:

I'm avoiding being sucked into the Twitter list vortex (it's a saved search I may dip into every now and again) but I've decided I'm really more interested in following a few people's blogs and having decent discussions with a smaller group of people in order to keep the raging torrent a little bit more controlled and get to know a few individual classmates a little better.

While reiterating the appeal for reducing participant numbers, this post also portrays EDCMOOC activity in terms of dangerous fluid motion and threatening turbulence. It is the ‘massive’ participant numbers and circulating flows of information that are perceived as menacing, requiring control if authentic learning is to take place. Significantly, it is the individual who is tasked with regulating the torrent, a point I will return to below. Participant Jackie replied to this post, suggesting ‘[l]ike you said, it is an ocean out there - a

raging torrent. But you don't have to kill yourself trying to drink every drop of water; you can find satisfaction with a cup'. The analogy of dangerous and expansive fluid is continued here, while the proposed solution is to reduce the ocean to a mere cup of water. In other words, the vast expanse of information and communication is abridged to size suitable for consumption by an individual human being.

Nevertheless, the analogies of the vortex and the torrent gesture towards a different vision of MOOC activity. These descriptions foreground the size and movement of communication, rather than its symbolic or communicative meaning. The scale and speed of EDCMOOC participation pushes the signifying capacities of communication into the background, focussing attention on the collective flows, speeds and intensities of activity. This is, I suggest, part of the material dimensions of the MOOC; the non-symbolic circulation of activity, coded and re-coded through the digital networks of the EDCMOOC, and hidden behind the preservation of rational dialogue. This is why, I suggest, participants began to offer metaphors of oceans, noise, turbulence and violence: the non-symbolic and non-representational dimensions of the MOOC were surfacing through these responses, manifesting as metaphor, but deriving from the pre-subjective material flows of EDCMOOC activity.

This shifts concern away from perceiving the MOOC as entirely founded, comprised and justified through human knowledge, towards considerations of the material relations and currents that underpin activity and communication. Rather than suggesting this is simply a shift from the epistemology to the ontology of the MOOC, as discussed in relation to new materialism in chapter 2, I suggest that it is better understood as a recognition of simultaneous (and intra-active) material and semiotic dimensions. In a forum thread entitled 'Strategies for dealing with the "massive"', Lula posted:

Navigating chaos aka the info stream is the perennial mooc dilemma, running the cyber white water rapids. Social media and forum threads swell the info streams. Every one manages the flow differently - and not always the same way twice. Talk about not stepping into the same river twice...

This is a striking description of natural forces, centring on imagery of fluid and intensifying movement, which seems to point towards alternative modes of MOOC engagement. The denial of repetition is particularly notable, the suggestion of continued difference in the way people might engage with the course. This perhaps reflects a call for the human to 'be

rediscovered anew in each encounter with a ceaselessly changing reality' (Davies 1997, p135). Here we might begin to perceive the potentials of intra-active relations between participants and information flows, modes of becoming through which participation does not retreat to the limitations of the anthropocentric community and the persistent drawing of boundaries between the human and the non-human. Community might be understood to be achieved here through *process* rather than *identity*; through the deliberate production of difference, making links with different information streams and data flows. I suggest that this reflects precisely Lewis and Kahn's notion of exopedagogy:

The uncanny home of exopedagogy is the zone of indistinction, disfiguration, and deformation that profanes the sacred parameters of community and self precisely by exposing the subject to potentiality to be or not to be this or that. (Lewis and Kahn 2010, p13)

Outside of the humanist subject

As we have seen in many of the calls for community, the contentment and sanctity of the individual surfaces as a primary rationale. In this section I turn to responses where this allusion is more overt, where concerns for the individual appear to be the underlying anxiety regarding MOOC participation. I will begin with a selection of forum responses, before analysing a sequence of four images in order to construct an alternative view of EDCMOOC participation. My intention here is to productively sidestep what may be the subjective intentions of the creators of these images, and offer other readings that may tap into a pre-subjective affect of 'massiveness' that permeates responses to the EDCMOOC. The purpose of this section is to foreground what is routinely excised by the dominance of the subjective and symbolic response to the MOOC.

Despite the initial concerns about the space of the EDCMOOC, and the subsequent calls for community solidarity, it was the figure of the individual that surfaced most prominently in the ways participants reflected on the course. In a forum thread entitled 'Strategies for dealing with the "massive"', Samuel suggests:

I agree and I believe that by having learning communities that limit the number of people to about 24 or maybe even 18 that each person would be recognized. How can you feel connected with 400,000 people and you are just a number.

In precisely the same way as the connectivist PLN was discussed in chapter 5, the community appears to be positioned here as subservient to the individual. A large group of

students is framed as isolating, while the reduction in numbers seems to be proposed as serving the emotional needs of each participant. Referring directly to the perceived problems of ‘massiveness’, participant Grant commented in the thread ‘Where are the professors?’, suggesting:

...the massiveness is probably the biggest challenge (while as a variable it is fascinating because of the many different countries and cultures represented). But as an individual, you are lost and drowned in our own dystopia about dystopias.

Significant here is the acknowledgement of an enticing fusion of people and ideas made possible by the MOOC, yet it is a prospect which appears to be unattainable without a coherent sense of self. Further forum contributions expressed similar sentiments, participant Emily contending ‘I feel if I make a post it is like shouting out in a crowded railway station trying to make myself heard above 40,000 others’. Reflecting the analogy of the airport discussed above, the suggestion of a railway station foregrounds notions of mobility, but also congestion and potential immobility. Crucially, however, it is not the dynamics of movement and travel that seem to be most important here, but rather the inability of the individual to be recognised by crowd. In a more wistful contribution, participant Percy writes:

...will my comments be read or are my comments being sprawled in the wind. If a tree falls in the forest and there is no one to hear its falling does the falling still make a sound.? It's the way I feel when writing this comment.

Striking here is the reference to a common philosophical thought experiment related to questions of epistemology, observation and reality. Here, however, the suggestion is that no one is reading the forum posts, echoing the concern for the individual to be acknowledged by the EDCMOOC population. Without delving into the many permutations on the thought experiment, I suggest that it points to the central argument of this thesis: the assumed anthropocentrism of the MOOC. Whether perceptible by a particular individual or not, something is most definitely happening in the material forests of the EDCMOOC.

These sentiments are reflected in the thread ‘Thoroughly overwhelmed and dystopia’, where Sally, states, ‘overwhelmed about how I find my niche and voice in this huge ocean of information’. The ocean is cast here as unfamiliar terrain, one in which the position of the individual appears to be marginalised and confounded. The vast expanse of information is framed as a threat to the ability to express identity or the supposed characteristics of the self.

The feedback survey reiterated many of these comments. One contribution states, 'I felt my input would be lost in the sea of discussions', alluding to the volume of activity swamping the individual contribution and suggesting a dissolving of the 'self' in the surge of content. The threat to the individual was summed up succinctly in the further comment, '[j]ust felt big, lost, and just a number', suggesting a loss of identity and a diminishing of the self to mere data. Continuing the seemingly ubiquitous metaphors of water, forum participant Saddle suggests '[t]he course feels like an ocean so I'm making myself post this comment as a way of dipping one toe into the water'. The ocean is used here to signify something perceived to be too vast to comprehend or master. MOOC activity is positioned as an external threat, but also as a vast expanse that must be negotiated by a human body ill-suited to the task of encompassing it.

Expressing a similar feeling of ineffectiveness participant Lizzie contends, 'I feel that participating in these discussion is akin to "spitting into the ocean"'. Whatever is unique to the individual is rendered unidentifiable amongst the 'massive' body of EDCMOOC activity. However, this interpretation belies a more profound reading, one which I will develop in the subsequent consideration of EDCMOOC images. In Lizzie's comment, fluid is not simply described as an external expanse or force, but also as something emanating from the human body. While the contribution may indeed be dwarfed, it seems to trouble the distinct boundaries between the human and the non-human swarms of activity. Fluid is part of 'us' human beings as much as it is the substance of the ocean. This signals the idea that the monstrous outside of EDCMOOC activity is already the inside of the human participant, and that the sanctified subject was always the oceanic material flow of information.

Alongside the wealth of discussions around the 'massiveness' of the EDCMOOC, participants began to express reactions in visual form. The image competition during week 3 of the course produced some particularly notable examples. 'Where are we going' by lisapieraccini conveyed what many appeared to be articulating in the discussion fora, depicting a human figure walking away from the audience across a bridge, heading towards a vast wall of social media icons and web-related symbols (see fig 68). Significantly, the human figure appears to be going willingly into this media-mass, the bridge perhaps symbolising a threshold over which the EDCMOOC participant must cross in order to reach the domains of the MOOC. Rather than a retreat to the safety of the community, this image seems to portray an advance. Across the bridge a space with different dimensions to the depth of the foreground emerges, suggesting an alternative spatial quality to the destination;

a space in which the human can no longer be the autonomous subject journeying over the divide.

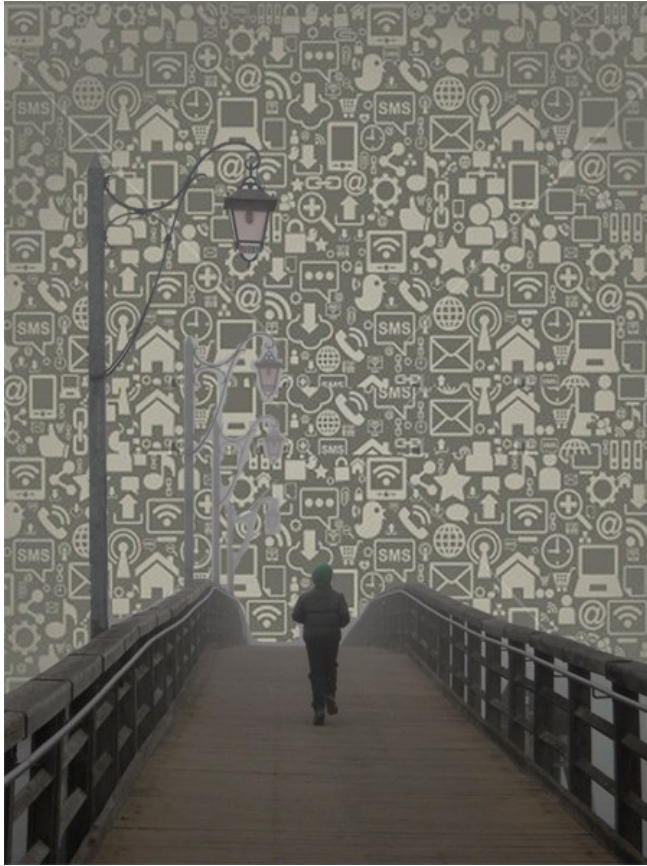


Figure 68: 'where_are_we_going' by lisapieraccini
<https://www.flickr.com/photos/93141791@N07/8469185652/>

The title of the piece, 'Where are we going' offers, I suggest, an additional reading. The destination for this EDCMOOC journey is suggested to be entirely unknown, yet the far side of the bridge is festooned with a profusion of social media icons and logos, supposedly indicative of meaning, yet failing to convey a clear response. This points to the inadequacy of representation in attempting to engage with materiality, as discussed in chapter 2. Try as the icons might, their very character as symbols can only ever represent that which they signify; they are already locked into a structure in which the symbolic is cleaved from the material.

From this perspective, 'Where are we going' illustrates precisely what I suggest all of the discussions and images analysed in this chapter are doing: necessarily representing the unrepresentable through metaphoric and discursive means. However, crucially, the symbolic is never exclusively so, and is always already constituted through non-representable

materials means. Therefore, the task here is to look beyond representation to the pre-symbolic forces which resonate through the images of EDCMOOC activity; material flows that have reverberated through participants themselves and continue to do so across this research. This reflects the methodological approach of intra-active, post-qualitative engagements with data discussed in chapter 3.

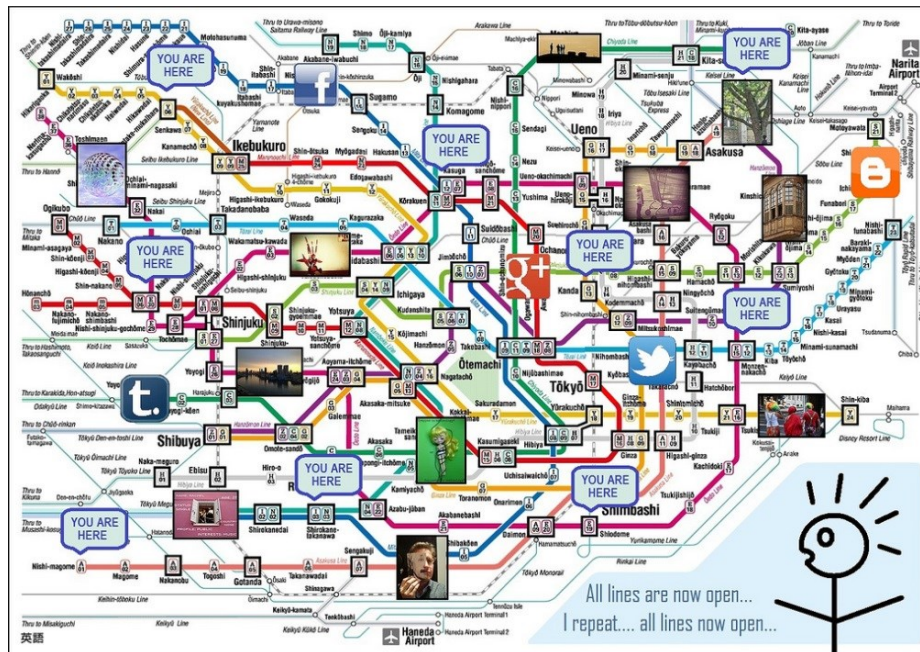


Figure 69: 'All Lines are Open' by Mullu Lumberras, a remix of the Tokyo underground map embellished with social media icons and images. http://farm9.staticflickr.com/8532/8479781150_fc99e4f1a7_b.jpg

In contrast to the willing travel depicted in figure 68, 'All Lines are Open' by Mullu Lumberras includes a human figure in the bottom right of the image, appearing to adopt a posture and expression of horror at the complexity of activity in the central portion (see fig 69). This entanglement is a remix of the Tokyo underground map, embellished with social media icons and additional EDCMOOC images (see fig 69). Once again surfacing themes of mobility, this image suggests an alternative MOOC world from the polished visions of the globe or the precise diagrams of participation discussed in chapters 4 and 5. This is a visualisation of density, frenetic movement, and confusing connections. The use of the underground map portrays the EDCMOOC as a space of chaotic movement driven by the activities of a condensed population (Knox 2014a), reflecting many of the comments about noise and volume discussed previously.

While the human figure is dwarfed by the sprawling mass of nodes and connections, there are two additional features worthy of note. Firstly, in contrast to the exasperated individual,

multiple ‘You are here’ signs are displayed over the map, suggesting not just a loss of orientation, but also multiple points of course interaction, and various figurations of the ‘self’. I suggest therefore that we can also perceive the prospect of a distributed subjectivity in this image, manifesting in ‘points of arrival’ throughout the map, produced through processes of relation in and amongst the flows and intersections of the digital. Secondly, we can also acknowledge the form in which the human figure appears. Faced with the complex material flows of the EDCMOOC and the multiple and relational productions of self, this human appears to have taken on something of a linear appearance. Rather than the preservation of human form, we might then be able to conceive of MOOC engagement in terms of intra-active relations. Here the, the lines and tracks of the map begin to parasitically enter into, or resonate through the human participant, altering their mode of being in this educational activity as they enter, traverse and exit the EDCMOOC space. This reading embraces a posthuman mode of thinking, that is ‘profoundly anti-individualistic and it consists in working within the belly of the beast, resisting the myth of organicism and holistic harmony’ (Braidotti 2013, p101). Such a view points towards approaches that acknowledge the co-constitutive production of humans and technologies within the MOOC, rather than the preservation of humanist subject.



Figure 70: 'Life will find a way' by willynan <http://www.flickr.com/photos/willynan/8470647335/>

Impurity is also, I suggest, a theme discernible in ‘Life will find a way’ by willynan (see fig 70). This image depicts what appears to be the top half of a human face projected over a concrete surface, through which a horizontal crack is seen, appearing to cleave the forehead in two. Emerging from the fissure are a number of green growths, possibly representing plants or weeds. Rather than default to a commonplace reading of this image as a lament to

the loss of nature in digital culture, perhaps indicated by the title of the piece, I suggest an alternative reading. Avoiding a nature | culture distinction, the image might be perceived as indicating a monstrous corruption of the rational and autonomous subject often assumed in the MOOC project. The vegetative growths might then represent non-human contaminations, while the crack in the pavement becomes a rupture in the bounded humanist subject, revealing other forms of life already within. The distinction of a pure ‘humanness’ appears to be troubled here; the concrete suggesting the constructed artifice of the humanist subject, which conceals beneath it a continuity of life that heeds no boundary. The crack in ‘Life will find a way’ might then be understood as ‘opening up a threshold between nature and culture, *zoë* and *bios*’ (Lewis and Kahn 2010, p34). Braidotti interprets this distinction along the lines of the human and posthuman relation, where *bios* is ‘the portion of life – both organic and discursive – that has traditionally been reserved for *anthropos*’ (Braidotti 2013, p60), while *zoe* is ‘life in its non-human aspects’ (Braidotti 2013, p66). This signals opportunities to think beyond the confines of the humanist subject, identifying not with the sanctity of a transcendent categorisation of privileged humanism, but rather with *zoe* as a ‘posthuman yet affirmative life-force’ (Braidotti 2013, p115), grounded in the concepts of immanence, vital materialism and monism, as discussed in chapter 2.

Such a reading might suggest that not all is well in the EDCMOOC; that the figuration of a self-directing, enclosed, and purified human subject is inadequate, faced as it is with the complex entanglements of ‘massive’ participation. The recognition of different ways of being might then be considered to surface in ‘Life will find a way’, beneath the symbolism of natural forms, indicating a life that is ‘monstrously productive and resilient, containing in it immense power of invention and generation’ (Lewis and Kahn 2010, p108). This signals an interpretation of the EDCMOOC as a nature-culture continuum, a perspective ‘that considers all matter as intelligent and self-organizing’ (Braidotti 2013, p136). In other words, this image surfaces the idea of the MOOC itself as a relational, generative, and dynamic material force, casting ‘massiveness’ as the complex flow of sociomaterial relations from which the subject is produced. Yet the purity of the human figure is continually haunted through the return of a contaminating excess. As we have seen in chapter 5 with the banning of silence and irrationality in the MOOC community, here the excised monster returns in its most profound sense; as non-human life always and already within the rational and bounded subject. As Lewis and Kahn suggest ‘whenever the anthropological machine attempts to draw distinctions, the animal restlessly returns to haunt the human subject’ (2010, p58).

Further unease between the figure of the human and the overwhelming spaces of the EDCMOOC is discernible in ‘Rabbithole’ by june.B (see fig 71). In this image, a humanoid avatar appears suspended amongst a surreal space of symbols and speculative forms, derived from social media branding and references to Lewis Carroll’s *Alice in Wonderland* (2008). Significantly, the human character is placed centrally, however it appears suspended and without poise. The avatar’s ability to move and interact with the surrounding space seems to be in question, and established embodied ways of navigating appear to be absent. This bizarre loss of control is reflected in the depiction of Lewis Carroll’s character Alice, known for encountering confusing spaces and disorienting experiences. ‘Rabbithole’ also presents an unorthodox vision of the MOOC, one that seems very different from the simple routines of scaled and egalitarian access discussed in chapter 4.



Figure 71: ‘Rabbithole’ by june.B showing a humanoid avatar suspended in an abstract space..
<http://www.flickr.com/photos/78233395@N02/8480022492/>

This image makes visible the disruptive and unintended effects of ‘massive’ participation; the uncertainty engendered by experiencing the magnitude of activity and interaction of the EDCMOOC. This is an experience, I suggest, that is excised by the scaled structure of the typical platform-based offering, which grounds MOOC activity in delimited and

recognisable educational spaces. This disorientation therefore points to the engrained experiences that students bring with them when they engage in new educational arrangements such as the MOOC (Ross *et al.* 2014). Perhaps expecting the classroom or the lecture hall, these images interpret the structure of the EDCMOOC as a site of movement and travel, or an immense and unnavigable space in which the individual has no footing (Knox 2014b).

However, ‘Rabbithole’ may offer another interpretation. Rather than being *disorientated* the avatar could be perceived as *reorienting* themselves within a new kind of educational arrangement; in a state of transition towards forming alternative embodied relations with a fluctuating digital space. The central human figure is digitally rendered, perhaps signalling a hybrid form that envelopes the social and the technological. Significantly then, this is not a complete rejection of the human, but rather, I suggest, the acknowledgement of a relational being that embraces the contaminations of the digital. Code infests the body of the human, while its pose in turn seems to twist and warp the surrounding space, echoing the representation of Alice. This is a participant that is immanent to the EDCMOOC, rather than transcendent and purified from it, allowing the digital to reconfigure their mode of being in the course, while simultaneously shaping that very same environment. This, I suggest, opens the possibility of thinking beyond a human | non-human distinction in MOOC activity. Rather than defaulting to the safety of the humanist subject, or reducing all to the nomadic flows of a material existence, we might then consider a shifting process of hybrid contaminations through which participants negotiate their MOOC involvement. A significant part of this, I contend, requires the deliberate evading of a subjective response. In other words, ‘Rabbithole’ provokes the idea that the reaction to the ‘massiveness’ of the EDCMOOC is not to become *more* human, but to become *less* so; to *become with* the monstrous of the MOOC. This entails a different kind of being entirely, one constituted through radical and transformative relations, rather than measured against transcendent categories. Esposito suggests one way of thinking about such a condition:

Completely normal isn’t the person who corresponds to a prefixed prototype, but the individual who preserves intact his or her own normative power, which is to say the capacity to create continually new norms. (2008, p191)

This is of course a challenge to orthodox educational routines, 'to no longer think the figure of the human as the evolutionary or teleologically inscribed goal of perfection via education' (Lewis and Kahn 2010, p69).

Conclusions

In this chapter I have explored the notion of hybridity as a way of understanding the EDCMOOC, as well as the wider context of the MOOC project within which this course has taken place. As Usher has suggested, '[h]ybridity rather than homogeneity and the relational rather than the bounded characterise the contemporary experience and conceptualisation of globalisation' (Usher 2002, p44), and as such may be a way to engage with the global context of this emerging educational format.

I have described the EDCMOOC as a course which manifested a particular kind of 'massiveness', suggested to be a confusing profusion of content and activity, influenced in part by the design of the course, but also by the modes of student participation. I have suggested a theory of the 'monstrous' (Lewis and Kahn 2010) as a way of understanding the 'massive' of the EDCMOOC. This has suggested a domain of non-human material flows and movements that exceed the containments of community and the boundaries of the humanist subject.

The first analysis section examined various spaces in the EDCMOOC, and proposed notions of hybridity and contamination as more productive ways of understanding the spatial configurations of course embedded in shifting digital environments and algorithmically ordered social media. As Law and Mol contend 'globalisation is not about networks but about fluidities' (2001, p620), and thus I suggest that notions of mutability serve as a productive contrast to the authentic and bounded spaces of the MOOC broadcast, discussed in chapter 6. However, I have stressed that hybrid spaces are not superior or emancipatory, but entail their own complex inequalities and imbalances. Indeed, it is through ideas such as contamination that I suggest further expositions of power and dominance in the MOOC can occur. Furthermore, notions of contamination have shown how the distinction and privilege of the humanist subject as the exclusive possessor of agency in the digital space are profoundly inadequate. I have emphasised the intra-active relations through which the human participants and the non-human algorithms of the MOOC are produced, suggesting this to be a way of engaging with the complexities of digital education beyond the subject.

In the second analysis section I examined a range of forum posts and feedback survey comments from participants of the EDCMOOC. I demonstrated how they described the course using striking metaphors of fluidity and noise, which were frequently positioned as dangerous threats to the EDCMOOC community of learners, thus limiting how we might understand the broader forces at play in the MOOC. In contrast to notions of community purification, I have suggested this discourse surfaces a monstrous outside of nonhuman, material flows, and a potentially productive way of understanding MOOC activity. I have suggested that the magnitude of these responses encourage a de-centring of representative meaning, foregrounding instead the collective activity of communication itself. The content of dialogue is no longer the emphasis, and attention is drawn to the non-representational, pre-subjective flows and frequencies of motion in the EDCMOOC. The potential richness of this domain in furthering our understanding the MOOC is precisely that which is excised by the human community, demonstrating the limits of the underlying humanist subject as the foundational justification for this global form of education.

Finally, I have continued this concern for the affective in an examination of the figure of the individual in forum activity, as well as a number of images produced by EDCMOOC participants to depict course themes, or their experiences of participation. I have suggested that the metaphors used signal a profound anxiety about the magnitude of EDCMOOC course activity, a distinct menace to the humanist subject, and a fear for the presence and orientation of the individual in education. However, I have also argued that they reveal alternative visions of a hybrid and relational engagement with the MOOC that looks beyond the purity of boundaries and the principles of humanism.

As I have suggested in chapter 4 and 5, MOOC participants tend to have been considered either identical and universal, or adhering to narrowly defined categories. These approaches appear to assume the self-directing platform enrolee, or the cohesive community member, and excise the possibilities of complex difference and discrepancy that ‘massive’ participation could entail. FutureLearn do appear to have acknowledged some novelty and value in the magnitude of MOOC participation, stating on their website:

We seize the opportunities that a large number of people learning together affords: the specialist knowledge that exists in the group; the number of people online together at one time; the way ideas flow around a network; and how crowds can help surface the best content. And we learn from watching how a large group of learners behave. (FutureLearn 2014d)

However, I have suggested here that a more radical approach is required to engage with the ‘massive’ of the MOOC; one that embraces notions of hybrid space, denies the sanctity of the human community as the solution to the mastery of the digital, and that looks beyond the humanist subject in order to welcome unfamiliar and radical relations with the difference surfaced in this emerging educational format.

Chapter 8: Conclusions

In their discussion of the Greek myth of Medusa, Lewis and Kahn's exploration of the monstrous focuses, not on Perseus's well-known tactic to slay the beast, but rather on the fate of the resulting severed head (2010). Given to the goddess Athena, the Medusa's head is used 'as a sign of civic strength to ward off foes' (Lewis and Kahn 2010, p25), thus taking on a talismanic property that serves to protect the human community from precisely the kind of monstrous threat that it formerly posed. No longer a dangerous beast itself, the severed head constitutes a taming and immunisation of a monstrous outside; a menace that is rendered impotent in order to maintain the order and stasis of the community. While Lewis and Kahn employ this reading as a critique of the relationship between capitalism and the state, I suggest that it also offers a valuable way of perceiving the MOOC phenomenon. Faced with the troubling complexities and supposed inevitability of globalisation (Edwards and Usher 2008, Clegg *et al.* 2010), and the unavoidable pervasion and disruption of digital technologies (Selwyn 2011), the project of the MOOC has sought to tame the dangerous threats perceived on the peripheries of education. We might therefore understand the MOOC, not as a genuine engagement with the monstrous potentials of global participation, or the agential properties of the digital, but rather as a talismanic protection that works to maintain the established concern for the humanist subject. Just as the Medusa's severed head secured against a much more radical threat (of a real, alive monster), we can see a similar immunisation in the platform MOOC model and the connectivist community; both seeking to tame the menace of the public web with institutionally endorsed spaces and notions of mastery over networks and social media. These are, I suggest, the twin severed heads of global and digital education: the corporate MOOC strategy presenting a façade of humanist universalism instead of active engagement with diverse participants, and the connectivist approach constructing a mask of personal empowerment and technology instrumentalism rather than acknowledging our co-constitutive relations with the digital.

The immunising routines of the MOOC have tended to build on the comfortably familiar in education: self-directing students, eminent academics, prestigious lectures, cohesive communities, and seemingly faultless, invisible and passive technology. The theoretical frameworks I have drawn on in this thesis have productively disturbed this ease and reassurance in order to ask new questions, to complicate matters, and to investigate what is not being asked in the field of open education at the present time. The MOOC embodies a

distinct moment in higher education; one in which a broad range of technological, promotional, and ideological factors came together to produce a particular intensity in the discussion and practice of education and technology. At the time of writing up this research, it might be argued that this moment has already passed; however it presents an important occasion with which to consider the boundaries, intersections and potential disruptions in the deep-seated assumptions and expectations of education and educational research. The MOOC surfaces at the boundaries of institutional provision and the emerging cultures and enterprises of the web, and such a liminal space presents a profound opportunity to examine the limits of educational thinking and the frontiers of our understanding about the human being at its core.

The concluding remarks in this chapter are divided into three sections. Firstly, I will specify the contribution of the thesis, focussing on the arguments made in each of the preceding chapters. The analysis in this thesis centres on a critique of humanism in the promotion, discourse, and pedagogical practices of the MOOC. This has been the intended focus of the research, motivated by the distinct lack of critical interrogation of the humanist subject in the current literature around MOOCs and open education in general. Posthumanist challenges to the foundationalism of the humanist subject have been well established around ecological (Pedersen 2010, 2011, Braidotti 2013,), cultural (Badmington 2000a 200b, 2003) and philosophical (Pepperell 2003, Fuller 2010) agendas, however this approach is underrepresented in digital education, and largely absent in studies of the MOOC. In the four analysis chapters I have examined the dominance of humanism from various theoretical perspectives, constituting an original and important contribution to the emerging research of MOOCs. In this conclusion I will also detail the implications for MOOC practice and pedagogy that are opened up by this critique of the humanist subject. In each of the analysis chapters, I have suggested a value in looking beyond the purely subjective, or symbolic and cultural, and embracing a perspective which views human beings as co-constitutive elements in a hybrid, sociomaterial, and monist understanding of the world. Here I will clarify the suggestions in each chapter in order to indicate alternative ways of thinking about the MOOC, and the technologies, spaces and human beings involved. In the third and final section I will outline future directions for this research. Here I will return to the discussions in chapter 3, and specify how the experimental approaches developed for this thesis could be advanced through a specific research agenda that focusses on data analysis and visualisation technologies. I suggest that this approach is one way of productively exploring the

relationships between theories of posthumanism and the practice of educational research in the digital domain, and is an area which has implications beyond the study of the MOOC.

The contribution of the thesis

In chapter 2 I grounded this thesis in a theoretical area which views the humanist subject as constructed through discursive and material processes, and with which the project of education is deeply interwoven. I also introduced new materialist theory in order to highlight the foundational separation of subject and object in Western thinking, and foreground a non-dualistic approach of hybridity and sociomateriality as the basis for subsequent analysis. One of the key purposes of this conclusion is therefore to clarify and summarise the critique of humanism undertaken in this thesis, and to justify my decision to target the uncritical adoption of humanist ideas in the MOOC project. One of the responses to the conclusions made in the four previous analysis chapters may be to ask: what is inherently wrong with adhering to humanist principles in the context of the MOOC? Therefore, the following section seeks to clarify what I see as the dilemmas, limitations and difficulties engendered by the uncritical adoption of humanist positions in each of the analysis chapters.

Chapter 4 showed how the tendency to assume a universal humanist subject binds the project of the MOOC to a colonialist arrangement that constructs education as the export of knowledge from elite institutions to awaiting populations in deficit. To assume a universal model of the MOOC learner based on a Western, self-directing humanist subject, not only disregards cultural and contextual difference in the world, it also perpetuates a tradition of dominance and appropriation. The corporate promotion of the MOOC appears to acknowledge and emphasise the diversity and distribution of enrolees, yet their expectation and desire for education is portrayed as uniform. The humanist tendencies underpinning such assumptions therefore significantly limit how we might understand the varied and multifaceted responses from global populations to educational initiatives like the MOOC. Perhaps more troubling, however, is the ease with which the simplistic model of the MOOC learner is imbued with superior qualities and opportunities compared with the existing circumstances of local educational provision. This is not to deny the potential worth of any MOOC experience, but rather to question the presumption that video lectures from elite universities are indisputably more valuable than local educational provision, or better able to emancipate and empower individual learners. It is this strategy of attempting to replace, rather than engage with, global education that perpetuates a colonialist orientation, justified

by the assumption of a universal humanist subject, desiring Western education and able to self-direct through the process. In this way, without the need to examine or understand what kinds of education might already be in place, the MOOC project can simply broadcast its elite brand of knowledge, in the full expectation of an enthusiastic and grateful response. Furthermore, the colonialist inclinations take a further twist when we consider the data collection strategies of the MOOC platforms. This shifts the aim and function of the colonialist manoeuvre towards the acquisition of personal data rather than geographical territory, a strategy which I have labelled the ‘data colonialism’ of the MOOC. Whether this personal data is used to generate revenue, or to develop and enhance the MOOC offerings themselves, the question of who gains the most benefit from such a strategy remains unclear. If we understand the MOOC simply as a project of emancipation and empowerment, this underlying potential for profiteering and injustice remains behind the veil of an altruistic open education, founded on the principles of humanism.

Chapter 5 outlined the drive to regulate and normalise forms of participation in the MOOC, and I have suggested this inclination to be underpinned by a tacit adherence to the unquestionable truth of the humanist subject. The assumptions of rational and autonomous modes of participation have structured and predetermined the ways that MOOC platform organisations have undertaken research into their learner populations. As a result, the entire spectrum of involvement has been defined around the core notion of a self-directing and motivated learner, rendering other ways of engaging deviant and insufficient. This is also apparent in the MOOCs informed by ‘connectivism’, courses which are routinely positioned as the alternative to the platform-based offerings. The banning of ‘lurking’ exemplifies the attempts to normalise conduct around rational behaviour, and designate any and all other engagement as undesirable and detrimental to the community. The point here is not to suggest that education shouldn’t be concerned with, or expect, particular kinds of conduct appropriate to the pedagogical values that support a particular course or activity. Rather, it is the scale, reach and homogenising tendency of the MOOC that surfaces the problem. If, as discussed in chapter 4, the MOOC is genuinely to provide education to the huge numbers of people for whom university attendance is impossible, then it is only through narrow and standardised modes of conduct that such participation will be permitted; modes of conduct that cannot represent the full diversity of a global involvement. Furthermore, as highlighted in chapter 5, the MOOC platform organisations appear to be endorsing research that is driven by a concern for retention within their software environments, rather than more nuanced considerations of the different kinds of education on offer. This homogenises ‘active’ or

‘passive’ participation as categories which have identical meaning across all course topics and disciplines, and disregards the different kinds of involvement, and measures of success that might be relevant in the diverse range of courses on offer. While such conditioning might be motivated by concern for publicity by the MOOC platforms, it is underpinned, and gains traction by also adhering to educational concerns for standardisation, which are themselves premised on notions of a universal human condition. In this way, while attempting to create an open and egalitarian form of education, the habitual return to humanist values in the MOOC constructs a fundamental division between an accepted insider community and an abnormal exterior. As illustrated in the connectivist PLE, this boundary formation is bolstered by a humanist concern for the false foundation of the ‘self’, the maintenance of which takes on the very purpose of educational activity itself, reflecting, as I have suggested, the incessant enclosures of Agamben’s anthropological machine (2004). The point here is that humanism forbids internal difference as well as societal difference, and acts to continually close down the possibilities for alternative, immanent relations with the world.

In chapter 6 I demonstrated the maintenance of elitism and inequality in the MOOC, and suggested that this is an arrangement that is imposed by the uncritical privileging of campus space. It is the humanist tendency to regard bounded and located place with an exclusive authenticity that restricts how the space of education is perceived, and this has significant implications for the way MOOCs are designed and delivered. As a project that is entwined with global network infrastructures, and massively diverse and distributed locations of study, alongside the campuses and institutions of partner universities, to focus exclusively on the latter provides an impoverished understanding of the spatial orderings of the MOOC, and constrains the ways we can perceive its participants. The promotion of the university campus as the site of genuine education constructs a false binary of ‘absence’ and ‘presence’ which preserves co-location and the ‘face-to-face’ as the privileged approach. This works to contradict the claims of openness and empowerment that underpin the MOOC project, and sustain a hierarchical and inequitable education system that is premised on orthodox notions of delimited space. The inclusion of chapter 6 is therefore intended to demonstrate how such notions are reinforced by an uncritical adherence to the humanist subject; a figure detached and elevated from the surrounding world, which is cast as the mere backdrop to the rational and intentional human agent. In such an arrangement space is presumed rigid, bounded and regional, structuring in a basal limitation of access. In other words, exclusion is created by the very condition of ‘space’ being something one must be either in or out of, rather than

something one is part of. If the MOOC space was considered in its sociomaterial totality, there would be no essential boundary of involvement or relation. The enduring tendency to default to the principles of humanism thus sustains the very inequalities the MOOC project seeks to overcome.

In Chapter 7 I examined the complex entanglements of human and non-human agencies prevalent in the digital spaces of the MOOC, and highlighted the dominance of the humanist subject as the guiding principle of participation. The privileging of the humanist subject as the exclusive source of intention and agency renders the non-human passive and compliant, and such an understanding appears to prevail in the way technologies are understood in the context of the MOOC. However, as I demonstrated in chapter 7, the involvement of digital technology produces intricate arrangements and contingencies which cannot be explained by a simplistic instrumentalism that would deny, for instance, the influence of software algorithms. It is the humanist privileging of the subject that underpins an instrumental view of technology, thus severely limiting our understanding of the complex relations between human action and algorithmic execution, resulting in an impoverished grasp of the way MOOC spaces are enacted. Thus one of the key purposes of chapter 7 is to show how the drawing of a boundary between a purely human ‘inside’ and a monstrous non-human ‘outside’ blinds us to the sociomaterial entanglements of the digital. I continued the notion of hybridity here as a way of perceiving productive, non-instrumental understandings of MOOC space. I also devoted much of chapter 7 to examining the power and influence of the notion of a purified humanist subject, despite what appear to be challenging conditions in the ‘massiveness’ of the EDCMOOC. The devotion to ideas of order, control and mastery over the learning process are indicative of the engrained desire to centre the humanist subject as the purpose of education, and establish the cohesive community as the machine of purification. One of the key contributions of this thesis is to expose this uncritical acceptance of the humanist subject as the foundational rationale of the MOOC. This is an approach to analysis not currently present in the literature. However, in chapter 7 I also suggest profound limitations imposed by the dominant figure of the humanist subject, proposing that such routines of purification work to cleanse educational activity of that which lies beyond the subjective and the symbolic. This contributes a further critique of the restrictive and constraining dimensions of humanism, also articulated in the other analysis chapters. As detailed in chapter 2, humanism necessitates the persistent drawing of boundaries to distinguish a pure human from a non-human outside, and this becomes the underlying engine of orthodox education, structuring subsequent activity around a self-

directing and autonomous ‘self’. In chapter 7 I outlined alternative ways of viewing the human beings involved in MOOCs, suggesting notions of hybridity and affect as constituting productive means of enacting education outside of the routines of the humanist subject. While purposively inconclusive and non-totalising, it is to these possible approaches that I now turn.

Suggestions for MOOC practice and pedagogy

In this thesis I have suggested value in looking beyond the humanist subject as the foundational rationale for MOOC education. Here the analysis has moved beyond merely identifying and critiquing the tendencies to adopt humanist principles, and has worked towards ways in which educationalists might think differently about the relational and sociomaterial processes involved in projects such as the MOOC, and ultimately about how the subject of education is constituted. My intention here is to clarify the significance of non-subjective understandings for the design and delivery of digital education.

In chapter 4 I raised the desirability of a collaborative and negotiable relationship between partner institutions and participant populations, rather than the one-way transmission that seems to be the dominant platform model. MOOCs might then seek to engage globally distributed participants in the exploration and exposition of different perspectives and cultural positions in relation to specific course topics and disciplines. More so than any other educational initiative, the MOOC would appear to have significant potential to bring diverse and globally distributed people into relation. Rather than focus on the homogenisation of knowledge and the standardisation of curricula, such a project could seek the productive foregrounding of difference, and challenge dominant understandings that are bolstered by the assumption of a universal and harmonious population. At present, the MOOC is promoted on the premise that it offers a superior educational experience for significant sections of the world’s population, yet this claim remains largely unfounded. The very same reach that facilitates the broadcast of video lectures could be utilised to engage with different educational systems, practices and pedagogies, rather than seek to replace them. In other words, MOOCs could also endeavour to learn from the rest of the world, rather than simply assuming the world’s desire to learn from them.

In chapter 5 I considered modes of participation outside of normalised, predetermined ways of engaging in the MOOC, indicating that such an approach might lead to fuller understandings of the rich and multifaceted ways that education might be undertaken.

MOOCs could engage with more complex ways of measuring participation that are linked more closely with the particular topics and disciplines being offered for study. This would provide a richer understanding of participation that avoids the simplistic binary of ‘active’ and ‘passive’, and works towards more detailed examinations of involvement in digital education. The following section on future research outlines one way this could be approached. Looking beyond the ideals of the humanist subject, ‘learning community’ could be conceived much more broadly, not only embracing the contamination of different cultural perspectives, but also acknowledging the productive corruptions of the non-human and the material. This would constitute, I suggest, a more open arrangement; not seeking the persistent maintenance of the ‘personal’ as the core justification for educational endeavours, but rather pursuing the production of difference. As Usher suggests ‘increased (en)counters with strangeness - direct or indirect - can result in enhanced understanding and sociality as much as increased alienation and/or hostility’ (2002, p45). Difference in the individual and difference in the community could be guiding principles for an education that values affirmative relations with alterity, and a continual drive to sustain an immanent rather than transcendent connection with the world. This reflects Braidotti’s call for ‘affirmation of the positivity of difference’ (2013, p11). Such an education would not be based on purification or division, or the drawing of a fundamental boundary between self and other, but rather the attempts to engage with a much broader and more profound sense of openness and inclusivity. It is important to stress that this is not a utopic vision of escape, suggesting the vanquishing of power through relations of difference. Rather, it could be an education of responsible experimentation (Edwards 2010) that seeks new relations, but also acknowledges the ubiquity of power and the persistence of complicity.

In chapter 6 I put forward the notion that the MOOC might be conceived as an arrangement in which spaces and subjectivities are produced in relation, rather than pre-existing as distinct and essential entities. This opens up productive possibilities for examining the complex spatial orderings encountered in the MOOC phenomenon; the entanglements of global technological infrastructures, established campuses, and massively diverse study locations. Rather than default to simplistic renditions of a largely unattainable campus, MOOCs could seek to engage with alternative spatial arrangements that account for the multiplicity and materiality of ‘place’. Bayne *et al.* have examined student study spaces within the context of a postgraduate distance learning programme (2014), and it is this analysis of the ways in which diverse locations enact the university that could be productively explored in relation to the MOOC. Thinking differently about the space of the

MOOC, as a complex entanglement of humans, educational institutions, technologies and geographies, creates an arrangement that is, I suggest, more inclusive and ‘open’ than simply offering free admittance to course content, or indeed images of campus real estate. As described above, the dualist relation between the humanist subject and a bounded and regional place produces the very conditions in which inclusion and exclusion have meaning. Further engagement with a spatial theory is one way of acknowledging the diverse and multifaceted ways in which the MOOC is enacted; as a product of all its distributed technologies, institutions and participants, rather than simply the university campus, to which all other activity is rendered peripheral.

In chapter 7 I drew on a notion of the monstrous to highlight the influence of non-human agency in the algorithms of the web, and alternative, non-subjective ways of understanding MOOC activity. Future approaches to the MOOC could explore ways of acknowledging multiple and distributed agencies in digital space, rather than attributing intention and control exclusively to human beings. Acknowledging hybrid entanglements between human participants and digital algorithms (see Knox and Bayne 2014) might be one way to approach, not only the design and use of MOOC spaces, but also the devising of educational activities. Exploring one’s co-constitutive role with the digital may be a productive learning activity for students engaged in online education; practicing ways of working with algorithms rather than assuming their passivity or compliance. Viewing MOOCs in terms of non-subjective material forces and movements, such as is described by the concept of affect, may also be a productive way of thinking about the practice and pedagogy of such courses. Thinking beyond the narrow routines and requirements of the rational and autonomous subject brings to the fore the non-symbolic, material dimensions of the MOOC. Such global movements, produced through complex sociomaterial relations between the humans, technologies and spaces of the MOOC, constitute a rich and valuable way of perceiving this far-reaching and massively active educational endeavour. While individual achievement or learning experience may be worthy dimensions of the MOOC to examine and seek to develop, such approaches miss the vibrant materiality that acts outside of concerns founded on the humanist subject. This encapsulates the further contribution of this thesis; a call for practices and pedagogies that look beyond the foundationalist framework of the humanist subject.

Future Research

The experimental research methods discussed in chapter 3 present fruitful opportunities to develop a research approach that critically engages with MOOC data analysis and visualisation, while also being appropriate for broader considerations of digital education. Technologies for data collection, such as the internet enabled sensors discussed in chapter 3, as well as the software utilised for the visualisation of qualitative data, constitute important sites for the examination of method in educational research. These two areas required technical skills that were not achievable with the timescale of this research, but indicate valuable trajectories for future projects.

Avoiding the oppositional dualisms of quantitative and qualitative methods, the post-qualitative approach described in chapter 3 outlines a productive way of working with data commensurate with the theoretical areas of posthumanism and new materialism. In this way, larger scaled and more complex use of web-enabled sensors could be employed to explore the profusion and entanglement of non-human agencies in the MOOC space. Further work with spatial, object and algorithmic agency might be initial categorisations with which to begin such research. Moreover, the projections for practice and pedagogy outlined above provide tangible directions for such exploration: the involvement of diverse and distributed populations; the forging of radical relations of difference outside the humanist community; the production of spaces through entangled sociomaterial enactments; and the foregrounding of ‘massiveness’ as a material domain of movement and activity outside of the subjective and the symbolic. Sensor technology might therefore be employed to capture data associated with distributed participants, challenging a normalised view of the learning community, and emphasising the complex spatial arrangements and hybrid sociomaterial condition of the MOOC model.

One specific area for such future research is the notion of MOOC community discussed in chapter 5. In this section I decided to focus on what I perceived to be the most prominent and influential factors within MOOC research and connectivist theory in conditioning the learning community and the humanist subject. This necessarily led to a focus on contingencies which were largely social, and this was the case particularly in discussions of connectivism. An important extension to my research will therefore be to examine further the material factors that impinge on the connectivist community, and the production of the leaning subject. Reliant on a vast array of social media and Internet infrastructure, connectivist theory has failed to fully interrogate the wider economic and political implications of this technology use, as well as the potential for non-human agency inherent

in the algorithms that often underpin these systems. The use of web-enabled sensors constitutes one way that research could go about foregrounding ideas of distributed and non-human agency, and this would allow me develop the critique initiated in chapter 5 to encompass further discussions of the material in relation to the MOOC community.

Deeply embroiled in working with sensor systems and data capture are the ways resulting data are visualised, constituting a further crucial area for critical engagement. Rather than assuming the transparency of visualisation methods, strategies are required that acknowledge and engage with the processes of translation, editing, and conversion that produce graphical renditions of data. This critical approach could be a profoundly important contribution to the emerging field of Learning Analytics; an area implicated in the future research of MOOC data. Instead of assuming that such data straightforwardly represent participant behaviour, or indeed human learning, this approach can be part of a productive acknowledgement of the constitutive and agential role of visualisation technologies in the research of the MOOC. In this way, continued work with web-enabled sensors and visualisation technologies presents an important development of this research that can continue the critique of dominant and uncritical humanism in the MOOC, but also explore alternative frameworks for understanding digital education beyond the orthodox principles of the humanist subject.

In closing

In chapter 7 and elsewhere (Knox 2013c, Knox 2014a) I have suggested a value in the ‘massiveness’ of the MOOC. I propose that it is precisely the scale and reach of this ‘massive’ activity that brings into focus the non-subjective sociomateriality of education. The volume of participation and the proliferation of activity can act to shift attention away from individual learners, and towards collective, human and non-human entanglements (Knox and Bayne 2014). However, as discussion in chapter 7 in relation to the EDCMOOC, the scale of MOOCs in general has been one of their most criticised aspects. In CCK08, often suggested to be the first MOOC, students were reported as finding open networks challenging and often sought the formation of smaller groups (Mackness *et al.* 2010). Recently ‘SPOCs’, or Small and Private Online Courses, have been hailed as an ‘almost inevitable evolution’ of the MOOC phenomenon (Coughlan 2013), suggesting the erasure of the ‘massive’ element entirely. Additionally, the ‘LOOC’, or ‘little open online course’ has been suggested to ‘swap the scale of a MOOC for the high-touch experience of a conventional online course’ (Kolowich 2012). A small non-profit UK-based ‘COOCS’ project has also been developed to ‘replace the Massive with the Community’, and offers a

space to create and participate in a small range of MOOC-like courses (Shukie 2013). Therefore, whatever value there might be in the ‘massiveness’ of the MOOC, it may be dismissed before educational research and practice has had the time to engage effectively with the non-subjective sociomateriality revealed by the scale and reach of such activity. Rather than retreat to the comforts of the human community, MOOCs might look to embrace and explore a human and non-human ‘massiveness’ as the guiding principle of future course design and pedagogy.

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Appendix A: Publications and presentations related to this thesis

Peer reviewed publications

Knox, J. 2013 Five Critiques of the Open Educational Resources Movement. *Teaching in Higher Education*, 18(8). pp. 821-832. DOI:10.1080/13562517.2013.774354

Knox, J. 2013. The Limitations of Access Alone: moving towards open processes in education. *Open Praxis*. 5(1). pp. 21-29.

Knox, J. and Bayne, S. 2014 Multimodal Profusion in the literacies of the Massive Open Online Course. *Research in Learning Technology*, Special Issue: Scholarship and Literacies in a Digital Age.

Knox, J. 2014a. Digital Culture Clash: ‘massive’ education in the E-learning and Digital Cultures MOOC. *Distance Education Special Issue on Massively Open Online Courses*. DOI:10.1080/01587919.2014.917704
<http://www.tandfonline.com/doi/abs/10.1080/01587919.2014.917704#.U6kowfldU1Y>

Knox, J. 2014b. The Global Institution, the Homely, and the Overwhelming: (per)forming three MOOC spaces. In S. Bayne, C. Jones, M. de Laat, T. Ryberg and C. Sinclair (Eds.) *Proceedings of the 9th International Conference on Networked Learning*. ISBN 978-1-86220-304-4

Knox, J. forthcoming a. Active Algorithms: Sociomaterial Spaces in the E-learning and Digital Cultures MOOC. *Campus Virtuales, University in the Cloud special issue*, 3(1).

Knox, J. forthcoming b. The ‘Tweeting Book’ and the question of ‘non-human data’. *Tech Trends Special Issue*.

Articles

Knox, J. (2013). E-learning and Digital Cultures: a multitudinous open online course. *eLearn Magazine*, published by the Association for Computing Machinery (ACM).

Knox, J. (2013). Who is open education for? OER, MOOCs, and their subjects. *Higher Education Development Association*, University of Oslo

Knox, J., Bayne, S., Ross, J. MacLeod, H, Sinclair, C. (2012). MOOC pedagogy: the challenges of developing for Coursera Association for Learning Technology (ALT) Online Newsletter. Issue 28.

Invited talks and conference presentations

Multimodal Profusion in the literacies of the MOOC. Code Acts in Education seminar 2, University of Edinburgh
2014, May 9th

The Global Institution, the Homely, and the Overwhelming: (per)forming three MOOC spaces. Ninth International Conference on Networked Learning 2014, Edinburgh. The Spaces of Networked Learning symposium.
2014, April 7th-9th

The Forum, The Sardine Can and the Fake: contesting, adapting and practicing the Massive Open Online Course. Internet Research Technologies 14.0 conference, Denver.
<http://spir.aoir.org/index.php/spir/article/view/795>
2013, October 23rd-26th

Theorising Open Technologies: concealments and exposures. 8th International Research, Work and Learning conference, University of Stirling
2013 June 19th

Developing and teaching 'E-learning and Digital Cultures'. Invited webinar Changing the Learning Landscape – Massive Open Online Courses (MOOCs) – an insight into developing and teaching on a MOOC, Higher Education Academy
2013 June 5th

Platform Games: Playing with the boundaries of data collection in the MOOC. Day of Ideas, Digital HSS, University of Edinburgh
2013 May 2nd

Platform Games: Playing with the boundaries of data collection in the MOOC. Invited talk and panel member at the British and Irish Law Education and Technology Association conference, University of Liverpool
2013 April 12th

Building communities in a MOOC
Panel member at Coursera Partners Conference, University of Pennsylvania
2013 April 5th

Running 'aMOOC'? Developing and teaching 'E-learning and Digital Cultures'. Invited talk at 'Online Teaching and the Rise of the MOOC', Nottingham Trent University
2013 March 25th

MOOC pedagogy: the challenges of developing for Coursera. Keynote presentation at the 13th Blackboard Users Conference, Durham University
2013 January 8th

MOOCing around with learning spaces. Ignite talk at Digital Methods as Mainstream Methodology, NCRM, British Library, London
2012 December 7th

Open Educational Resources: salvation or subjectification? Invited talk, SRHE 'The Digital University' event, University of Edinburgh.
2012 November 2nd

Digital HSS: Critical Perspectives from HSS Webteam on Vimeo. MOOCing around with learning spaces. Ignite talk at the Internet Research Technologies 13.0 conference, AoIR, University of Salford

2012 October 19th

Three critiques of the Open Educational Resources movement. Losing Momentum? Current challenges in learning and technology. University of Oxford.

2012 June 14th

Motivated, Omnipotent, Obligated, and Cheap: Participating in a MOOC (Massive Open Online Course). Elearning@Ed conference. University of Edinburgh.

2012 April 13th

Published papers

Five critiques of the open educational resources movement

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This paper will review existing literature on Open Educational Resources (OER). It is intended to examine and critique the theories which underpin the promotion of OER in higher education, not provide guidance on their implementation. (1) I will introduce the concepts of positive and negative liberty to suggest an under-theorisation of the term ‘open’. (2) OER literature will be shown to endorse a two-tiered system, in which the institution is both maintained and disaggregated. (3) I will highlight a diminishing of the role of pedagogy within the OER vision and the promotion of a learner-centred model for education. (4) This stance will be aligned with humanistic assumptions of unproblematic self-direction and autonomy. (5) I will discuss the extent to which the OER movement aligns itself with economically orientated models of the university. I offer these critiques as a framework for the OER movement to develop as a theoretically rigorous area of scholarship.

Keywords: OER; open education; self-direction; autonomy; Foucault

Introduction

The Internet has become central to the aims of the open education movement. It is a technology perceived to reduce or diminish institutional dominance and facilitate democratic access to information (Macintosh, McGreal, and Taylor 2011; Taylor 2011). Internet technology is frequently judged to have ‘enabled and inspired’ the open education movement itself (Brown and Adler 2008, 18); and it is the development of Open Educational Resources (OER) which has had the biggest impact in this area. The OER movement proposes extensive free access to information in the form of web-based digital resources for teaching, learning and research, and is associated with a wide range of projects including MITs ‘Open-CourseWare’, and the ‘OER University’ (Macintosh, McGreal, and Taylor 2011). OER are typically placed in the public domain for free use or repurposing by others, and can range from full courses to individual modules (Downes 2007; Hylén 2006). Following from significant institutional uptake of OER projects worldwide (Caswell et al. 2008; Hilton III et al. 2010; Hylén 2006), in 2011, UNESCO announced policy guidelines for the implementation of OER in higher education, attempting formally to standardise the ways in which these resources are created and shared within the sector (UNESCO 2011).

Academic interest in OER has largely focused on case studies, strategies for implementation and approaches to institutional change (see Conole 2012; Duval and

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Wiley 2010; Ehiyazaryan and Fitzgerald 2012; Gaskell 2009; Sorensen, Conole, and Harlung 2011; Wiley and Hilton III 2009). However, critical studies which examine the pedagogical and educational rationales that underpin OER are less common, and the field remains significantly under-theorised. Therefore, in this paper, I will introduce five critiques of OER, with the intention of providing a framework for the movement to develop as a theoretically rigorous area of scholarship. It is not my intention to propose ways in which OER might be implemented, developed or promoted, because such a strategy presupposes their value. The purpose of this paper is to question the underlying philosophical implications of employing OER in higher education. At a time when prominent figures in the open education movement are claiming OER to be 'the key not only to solving the global education crisis but to unlocking sustainable global growth in the 21st century' (Daniel and Killion 2012), such a theoretical consideration is vital.

The critiques outlined in this paper are motivated by a concern for the ways in which learners are being framed by the promotion of OER. In focusing, often disproportionately, on the capacity for OER to solve the long-standing educational problems of access and inclusion, this promotion appears grounded in the well-established path of liberal education: as a project that seeks to improve the human condition (Marshall 1996). At the heart of the OER mission is 'the provision of access to learning opportunities to those who would not otherwise be able to obtain them' (Downes 2011). Using OER is claimed to enhance the quality of human life, bring people out of poverty and in doing so taking on the role of 'social transformer' (Caswell et al. 2008, 1). For this purpose, the OER community pledges 'to develop together a universal educational resource available for the whole of humanity' (D'Antoni 2008, 7). With reference to the declaration of human rights, Caswell et al. (2008) claim 'for the first time, we can now begin to convert a 60-year-old declaration into a reality' (10). However, in taking on such grand tasks, the advancement of OER frequently makes assumptions about the kind of individuals who might participate in their educational model. In defining the object of education to be the enhancement of human life, the OER movement tends to naturalise an archetypal human condition: a set of idealised qualities to which learners are expected to adhere. These characteristics are predicated on the ways that openness, freedom and independence are advanced as part of the OER agenda.

An under-theorisation of the notions of 'openness' and 'freedom'

In 1958, the liberal philosopher Isaiah Berlin proposed two concepts of freedom: positive liberty and negative liberty (Berlin 1969). Established in the fields of political philosophy and economics, these ideas about the nature of individual freedom provide valuable insights for a consideration of open education. Positive liberty concerns itself with specifying the practice of freedom. At the heart of this concept is the idea that individuals are rational beings; it is through the innate abilities of reason that people are able to decide the form and quality of freedom and the way in which liberty is to be exercised (Berlin 1969). For Berlin, this idea of positive liberty operates within the individual, banishing lower order desires, as much as it functions in society, where populations can be coerced into the notions of freedom rationalised by those in authority. In contrast, Berlin also defines negative liberty. Rather than involving itself with the practice of being free, this idea of liberty emphasises the

removal of barriers to freedom. Where positive liberty might be considered freedom *to*, negative liberty becomes freedom *from* (Marshall 1996). At the core of this individualistic sense of freedom is the idea that people must be allowed to exercise their will without the intervention or oppression of other human beings (Berlin 1969). Thus, negative liberalism concerns itself entirely with the removal of obstructions to personal liberty, and offers no vision for how freedom might actually operate in practice. The central difference between these two concepts of freedom is the extent to which liberty must be specified, or can be assumed. Positive liberty views the predefinition of freedom as a requirement for a coherent society, while negative liberty assumes that it will come to exist when obstacles are eliminated.

These two concepts of liberty can be traced in the principles of individual freedom and independence that underpin both conventional education and open access learning. The traditional model of the educational institution might be considered to reflect the rationales of positive liberty by predetermining the methods of access to knowledge, and the subsequent delivery of learning. Just as in Berlin's formulation of positive liberty (1969), the control and discipline exacted by the educational institution can be viewed as the imposition of a centralised rationality. This view is informed by a Foucauldian sense of power as existing in the performance of systems; having 'embodiment in rational forms of government, administration, management and supervision' (Usher and Edwards 2005, 402). The institution predefines the structure and organisation of education, as well as the status and extent of knowledge, according to what it considers to be the most reasonable approach to improving the lives of the unenlightened (Marshall 1996). In this traditional teacher-centred model, learners are coerced into the systems of the institution on the grounds that they are as yet unaware of the rational superiority of the educational method. This view resonates with aspects of positive liberty, in which the populace are considered blind to the rationality inherent in themselves (Berlin 1969). Where education has been considered a public service which emancipates the illiterate and innumerate from the predicaments of ignorance (Marshall 1990, 1996), the educational institution might be considered to play a definitive role in the agenda of positive liberalism.

It is perhaps this type of an exaggerated scenario that liberal educators have perceived in the traditional university and this kind of model which provokes the desire to move away from institutional control. Educational endeavours that promote open access have clear similarities with the concept of negative liberty, focusing their concerns on emancipation from hierarchies of control and the bypassing of systems which condition admittance to knowledge. The OER movement in particular appears to emphasise on the model of freedom *from*, positing 'the removal of "unfreedoms"' (Atkins, Brown, and Hammond 2007, 1) as a principal aim, alongside 'innovative approaches to remove barriers to the creation; use, re-use and sharing of high-quality content' (Atkins, Brown, and Hammond 2007, 5). In declaring that 'individuals are free to learn from OER' (Macintosh, McGreal, and Taylor 2011, 4), the implication appears to be that learning is something that is possible with, perhaps even enhanced by, the absence of organisation and structure. Central to many in the OER cause is the idea that the educational institution functions as a barrier to the egalitarian acquisition of knowledge. This is often formulated in the claim that demand for higher education surpasses current

provision: a dilemma which OER are suggested to solve (Atkins, Brown, and Hammond 2007; Brown and Adler 2008; Macintosh, McGreal, and Taylor 2011; Taylor 2011). This drive to overcome obstacles has dominated the literature, in which OER are also suggested to provide solutions to copyright regulations or financial constraints (for example Downes 2007; Hylén 2006).

Berlin's two concepts of liberty provide a coherent framework for understanding the implications of the OER project. By promoting 'openness' in terms akin to negative liberty, the OER movement has overemphasised the removal of barriers as the principal concern of open education. However, as a result of this focus, there is a distinct lack of consideration for how learning might take place once these obstacles are overcome.

The rejection and privileging of institutional structure

The promotion of OER appears to advocate two different educational models. I will suggest here that these cannot coexist without the creation of a two-tiered education system. University affiliation is often made explicit, most notably on MIT's OpenCourseWare website (MIT 2012). Within this model, OER are promoted as ways of sharing teaching resources amongst existing faculty, as well as facilitating the establishment of participative learning communities comprised of students and academics (Brown and Adler 2008), a view supported by Downes (2007). Rather than mere information repositories, OER are described as the building blocks of a constructivist-informed 'learning 2.0', comprised of social learning, legitimate peripheral participation and learning through communities of practice (Brown and Adler 2008, 28). Brown and Adler (2008) suggest that OER learners will become enthused by niche groups, 'learning to be' through processes of enculturation and apprenticeship (19). Ultimately, this model of learning involves teachers and university faculty playing a central role in using, creating and adapting OER (Johnstone 2005). Institutional structures remain intact, and OER are promoted as a way of enhancing the activities of teaching, learning and research in the university.

However, OER are also promoted as part of a very different model. In order to avoid the perceived limitations of the institution, organisations such as the influential OER University (OERu) are advancing the idea of an 'OER ecosystem' (Macintosh, McGreal, and Taylor 2011, 5). Within this model, campus attendance is unnecessary and the use of OER encompasses the entire educational experience. The OERu calls for a 'parallel universe' (Taylor 2007) in which the activities of teaching and learning take place independently of a centralised institution. Macintosh, McGreal, and Taylor (2011) propose that in this 'examination only' model (1), 'learners access courses based solely on OER' (5), while institutional involvement is reduced to assessment and accreditation. Significantly, these plans are not advanced as an alternative to existing institutional practices. Alongside the benefits of sharing resources and expertise amongst teachers – implying the preservation of current university faculty – OER are suggested 'to complement and augment formal education provision, especially for those who lack the means to follow traditional learning paths' (Macintosh, McGreal, and Taylor 2011, 5). This OER model is therefore not in opposition to the institution as a place for teaching and learning. Rather, it seeks to widen participation in education with a two-tiered system: those who are guided in their learning by institutional expertise and those who must

self-direct. Macintosh, McGreal and Taylor (2011) acknowledge the potential for inequality in this model; however, the problem is framed solely in terms of accreditation, suggesting that OER 'could lead to a new form of elitism where the perception associated with online degrees using OER would not command the same respect as campus-based alternatives' (3). What they fail to recognise, however, is that by calling for independent OER learning to be assessed in the same way as campus-based education, those targeted by the OERu are expected to achieve the same levels of attainment without the contact or supervision received by those attending university. The inequality does not just lie in the recognition of the qualification, but also in the range and quality of the guidance and support.

No place for pedagogy

In proposing that institutional involvement can be reduced to the roles of assessment and accreditation, prominent voices within the OER movement appear to reject the pedagogical functions of the university and the place of the teacher. Wiley describes higher education's existing 'core areas' as 'content, research, expertise, and credentialing' (Wiley 2006, 4), which appears to downplay the part that teaching plays in the institution. The inclusion of a pedagogical strategy or teaching theory in this model of OER learning seems to be thin on the ground. Macintosh, McGreal and Taylor (2011) suggest that OER learners are supported by 'appropriate pedagogical design for digital learning environments; and a new global system for academic volunteers' (1). However, this appears to diminish the responsibilities of the teacher to environmental facilitation and deny the role of teaching a professional status. The term 'open pedagogy' has been identified as a central and critical area for development (Taylor 2011); however, its definition has been limited thus far to 'teaching focused on the pedagogy of discovery' (Macintosh, McGreal, and Taylor 2011, 14). This apparent dismissal of teaching methods and teacherly expertise might be considered to sit uneasily with the prestige attached to institutional accreditation. In proposing that university approval for qualifications will raise the perception of OER, Macintosh, McGreal, and Taylor (2011) appear to acknowledge the status and value of the institution. Yet, in advancing a model of self-directed OER learning, the pedagogical proficiency that undoubtedly contributes to the prestige of the institution is eliminated.

I suggest that the absence of teaching strategies is predicated on a fundamental prioritisation of 'learning' as the central concern of the OER movement. This reflects a broad conceptual shift which has been termed the 'learnification' of education (Biesta 2009). This involves 'the translation of everything there is to say about education in terms of learning and learners' (Biesta 2009, 3). Such a shift might be considered to follow from the influence of humanistic psychology and constructivist orthodoxy in education, where 'learner-centred' methods are privileged. However, while self-directed learning appears to underpin the OER project, it is seldom theorised in the literature. The nurturing of self-motivation is implied in suggestions for 'passion-based learning' (Brown and Adler 2008, 32), yet this remains undefined. Reference is made to the ways in which OER might be repurposed and reused; however, this tends to foreground strategies for dissemination rather than theories for learning (Hilton III et al. 2010). Downes calls for a 'self-managed education', but concentrates on proposing infrastructures and strategies for how this might be put in

place, rather than specifying how it might actually operate in practice (2011). This absence is justified in terms distinctly reminiscent of Berlin's negative liberty: 'The temptation to manage, and especially to manage for outcomes, in the provision of any good or service, is overwhelming. It should and must be avoided' (Downes 2011).

There is a significant lack of research concerning the ways that teaching in higher education might translate into the model of independent, self-directed access to learning resources. The use of OER in the absence of institutional structures, with their in-built teaching frameworks and pedagogical and subject expertise, implies that individuals are able to manage their own educational activity without difficulty. In endorsing such self-directed learning, the OER movement has tended to make assumptions about the capacity for individuals to act purely in an autonomous fashion.

Humanistic assumptions of autonomy and self-direction

Berlin's two concepts of liberty provide one way in which we can understand the implications of self-directed OER learning. One of the central arguments in Berlin's (1969) paper was for plurality in the concept of liberty, highlighting two uses of the term which differ significantly in their outlook, and imply very different ideas about how society might operate. However, to privilege negative liberty in its most idealistic sense is to assume that states can exist in the absence of restriction, dominance and discipline, and ultimately to adopt a narrow view of the concept of power. As tantalising as the promise of openness might seem in the context of education – a world emancipated from the constraints of archaic institutions, in which individuals are free to do and learn as they please – such unregulated autonomy cannot in principle be predicted or assumed to function according to predefined ideas. Indeed, Berlin suggests that philosophers have dismissed an extreme form of negative liberty, supposing that 'it would entail a state in which all men could boundlessly interfere with all other men; and this kind of "natural" freedom would lead to social chaos' (Berlin 1969, 157).

However, advocates of self-directed OER learning frequently predict outcomes comparable to those achieved with institutional guidance (Macintosh, McGreal, and Taylor 2011). Moreover, the prognostications of emancipation, global economic gains and universal education (see Atkins, Brown and Hammond 2007; Daniel and Killion 2012; Caswell et al. 2008), appear to sit uneasily with the idea of a decentralised system that avoids predefined aims. Given that those promoting the independent use of OER are not advocates of chaotic or unpredictable learning, we might contend that reasoned thinking must play some part in the structuring of the OER project. Therefore, it is not the concept of negative liberty itself that is problematic, but rather the premise that its realisation will achieve predefined goals: that an expected order will somehow emerge from unrestrained action. In predicting achievements that often surpass those of the university, we might suppose that proponents of self-directed OER learning assume an innate human ability to self-direct. Education itself has been implicated in such humanistic suppositions, being founded on the ideals of the rational exercise of autonomy and individual agency (Usher and Edwards 1994).

It is therefore the conception of the human being that is of profound importance in a critical study of OER. As Berlin astutely points out, 'the conception of freedom

directly derives from the view that is taken of what constitutes a self, a person, a man. Enough manipulation with the definition of man, and freedom can be made to mean whatever the manipulator wishes' (Berlin 1969, 163). It is here that we can perceive the limitations of Berlin's two concepts of liberty, and begin to tackle the potential problems in pursuing open education as the mere removal of perceived barriers to access. The dichotomous view of freedom envisioned in the positive and negative concepts of liberty rely on the assumption of a given, self-directing human subject, imbued with innate abilities to engage in rational and autonomous behaviour. Such a humanistic perspective assumes that learners are 'naturalistic objects, pre-existing in the social world' (Usher and Edwards 2005, 404). However, such a stable, pre-determined subjectivity can only relate to notions of power in terms of overt dominance. In the case of positive liberty, power is thus limited to exercising authority or acceding to it. In the case of negative liberty, power becomes something that one can only escape from. Such a perspective denies more subtle notions of power, in which human subjectivity can be constructed and shaped by forms of control, rather than simply responding as a predefined and stable entity. Thus, the promotion of independent OER learning will be considered here to follow the course of governance in modern society, where forms of power 'intertwine expertise and personal empowerment, thereby displacing the need for active containment and overt oppression' (Usher and Edwards 2005, 401). It is precisely in this fashion – through the overt endorsement of institutional accreditation and the ambitious pledges of empowerment and autonomy – that the OER movement might conceal more profound instances of power.

One possible way for the OER movement to engage with more subtle notions of power is to work with a critical theory of the subject. Rather than perceiving individual autonomy as an innate human quality, such a perspective might view independence and self-direction in education is a social construction (Marshall 1996; Olssen 2005). This critique of autonomy derives from the contention that the self is able to objectively comprehend and abide by laws, as opposed to merely following them (Marshall 1996; Olssen 2005). This follows from Foucault's assertion that the notion of the subject cannot entail a separation of the transcendental from the empirical (Marshall 1996). To act autonomously requires the subject to be able to discern all that might influence or affect them, necessitating that the individual be viewed as an entity separate to, and abstracted from those encroachments. Referring to Kant, Marshall (1996) suggests that such a notion of autonomy was conceived out of the need to vindicate moral action, rather than provide a coherent sense of subjective agency. Foucault's notion of subjectivity challenges the idea that the self and the law can be considered separate entities, proposing that the self only comes into being through the enactment of laws (Marshall 1996). Thus, the human subject emerges from structure and organisation, rather than being foundational. Related to this notion of subjectivity, a broad spectrum of Foucault's work has concerned the construction of the self through power-knowledge (Olssen 2005), a concept that stipulates the close relationship between power and knowledge such that one is always embroiled in the other (Foucault 1979). From this perspective, the emergence of knowledge necessitates systems and configurations of power.

Such perspectives call into question the apparent reliance on self-direction and autonomy often detectable in OER literature. Alternatively, the OER movement

might contend with the notion that its planning, implementation, presentation and discourse are involved in the construction of the subjects who participate with them. If an environment is structured in such a way as to presuppose a certain type of subject, that subject will emerge (Marshall 1996 citing Walkerdine 1986). That said, in suggesting that the OER movement engage with a Foucauldian critique of the subject, it is not my intention to replace the idea of innate qualities with one that sees human beings constructed entirely through discourse. Rather, this perspective is intended to highlight the complex range of external factors which might influence or interact with the practices of self-directed learning. Indeed, aspects of individual agency may not be impossible with OER: the ability to reconstruct and recontextualise these resources has been stated as a foundational principle (Atkins, Brown, and Hammond 2007; Johnstone 2005). Nevertheless, the extent of this 'remixability' has been criticised for its failure to adapt to local contexts, specifically for non-Western peoples (Richter and McPherson 2012). As we shall see in the next section, it is precisely this group of people who are assumed to benefit from high-profile OER initiatives.

Alignment with the needs of capital

Foucault's concept of governmentality offers a useful theoretical framework through which the construction of OER subjectivity might be considered. Governmentality concerns the interplay between what Foucault terms 'technologies of domination' and 'technologies of the self' (Foucault 1988). The former relates to the ways in which individuals are constructed through discourse, while the latter concerns the induced behaviours through which an individual might perform a particular kind of subjectivity. This allows us to consider how the subject of open education might be constructed by the interplay between promotion and participation; how the OER learner might emerge from the discourse and methods of self-directed learning. In this final section, I will offer some examples of the ways in which OER are publicised in the media and described in academic research, and connect these themes with a theoretical view of self-directed conduct. While I do not content that this theoretical offering encompasses the entire OER experience, I do suggest that it highlights vital issues concerning the functions and responsibilities of higher education.

In suggesting that OER could be the solution to economic growth in developing countries, Daniel and Killion appear unambiguous about who is being targeted by the self-directed model of OER learning (2012). As we have seen, this second-class OER provision is aimed at learners who lack the means to attend established institutions. As such, the notion of empowerment features strongly, promising emancipation from the obstacles of 'poverty, limited economic opportunity, inadequate education and access to knowledge, deficient health care, and oppression' (Atkins, Brown, and Hammond 2007, 1). However, and often paradoxically, much of the language in OER literature is distinctly in terms of the marketisation and commodification of higher education and its subjects (Macintosh, McGreal, and Taylor 2011). OER become an element of the arsenal brought to bear by the institution in contending with global competition, and the learner participates as a consumer, 'characterised by a *demand-pull* rather than the traditional *supply-push* mode' (Brown and Adler 2008, 30). Successful places of learning are described as 'robust local ecosystems of resources supporting innovation and productiveness'

(Brown and Adler 2008, 16), utilising terminology which naturalises the conditions of economic prosperity and the exchange of capital. The effectiveness of OER is frequently articulated in terms of the ability to 'reduce the costs associated with reproducing and maintaining online courses' (Macintosh, McGreal, and Taylor 2011, 8); however, this emphasis on replication appears to suggest the need for uniformity, where a homogeneous population of learners benefit from identical resources. OER proposes to produce a 'well-educated workforce with the requisite competitive skills' (Brown and Adler 2008, 16), while Downes cites the 'link between educational attainment and economic activity' (2011), appearing to align the learning subject seamlessly with a functioning capitalist economy. Daniel and Killian are upfront about this alliance, suggesting that the best OER initiatives should align their content directly with the needs of specific businesses (2012). As we have seen, one of the central justifications for OER is the claim that demand exceeds current and future institutional provision. However, this appears to rely on the promise of great swathes of self-motivated educational consumers, ready to shell out their innate ability to learn in exchange for gainful employment.

The manner of participation in self-directed learning can also be perceived to directly influence how individuals formulate knowledge about themselves. The 'parallel universe' of OER appears to permit a very specific form of independent educational conduct. Within this model, individuals are obliged to attain, for themselves, particular states of scholarship, enlightenment and economic well-being. This human capital, from a Foucauldian perspective, is deeply embroiled in defining individuals as autonomous beings, who are responsible for their own development (Lemke 2001). As we have seen in the restructuring of the educational institution, the responsibility for learning is shifted entirely to the individual. Decision-making is placed solely in the hands of the individual, where consequences 'are borne by the subject alone, who is also solely responsible for them' (Lemke 2001, 201). However, institutional control does not diminish, rather the OER movement can be conceived as 'a reorganization or restructuring of government techniques, shifting the regulatory competence of the state onto "responsible" and "rational" individuals' (Lemke 2001, 202). The freedoms induced through the use of OER have also been claimed to 'increase human capital' (Atkins, Brown and Hammond 2007, 2), barely disguising adherence to the idea that autonomy 'retains its connections with policies and institutions of the state' (Marshall 1996, 85). It is the citizens of the world who must liberate themselves from poverty and ignorance through the activities of self-directed and autonomous learning. Thus, the self-directed OER model permits particular behaviours and activities that influence and compound the sense of autonomy and empowerment in the production of the self as human capital.

Furthermore, such a personally responsible subject is implicated in the practice of persistent self-examination. Such 'self-inspection' can be considered a systematic thought process: acting to identify knowledge, as well as authenticate it. In combination, this forms a permanent self-critique in which individuals measure their 'self' against established regimes of knowledge (Foucault 1988). Significantly, the OER subject is often projected to be an individual in need of continual learning, upheld on the basis that relevant knowledge becomes ever increasingly redundant in contemporary society (Brown and Adler 2008). This reflects notions of the contemporary self as constructed through the role of the consumer; a subject in permanent deficit (Rose 1989). Thus, the independent OER learner is encouraged to

subject themselves to a prolonged scholarship, persistently engaging in examinations of the self in order to determine the superfluity of their knowledge and become a flexible contributor to the efficient flow of capital.

Conclusion

This paper is not intended to dismiss the OER movement per se, but rather to seek its refinement through a more rigorous theoretical examination. The five critiques introduced above are suggested to provide a coherent framework for future work in this area.

- (1) Further research is required concerning the pedagogical implications of openly accessible information. Proponents of OER have focused disproportionately on the removal of barriers to accessing educational content, and studies into the activities and competences of self-direction are needed.
- (2) Two differing models of OER learning are being promoted: one which maintains the restricted provision of the university and another which proposes independent study, preserving the institution only for assessment and accreditation. Higher education needs to consider the implications of this disaggregation and the potential problems incurred by a two-tier education system.
- (3) The promotion of self-directed OER learning neglects to address the role of pedagogy. OER initiatives which seek the prestige of formal institutional accreditation need to acknowledge that teaching is integral to the reputation of the university.
- (4) The OER movement tends to make presumptions about the ability of its learners to self-direct towards the predefined goals of established institutional assessment. OER research might contend with initiatives that actively involve learners in new forms of assessment and recognition. Badge systems serve as an indicator of particular accomplishments or skills within various learning environments. Instead of viewing university accreditation as the ultimate goal of OER learning, badges offer 'a way to capture, promote and transfer all of the learning that can occur within a broader connected learning ecology' (Peer 2 Peer University and The Mozilla Foundation 2012).
- (5) The use of OER can be perceived, not as a more rational improvement to education, or a more humane and naturalised form of learning, but as a further refinement in the exercise of power. The OER movement needs to acknowledge its own discursive alignment with the marketisation and commodification of education, and the ways in which this technology constructs the learning subject as human capital.

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The limitations of access alone: Moving towards open processes in education technology

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Abstract

“Openness” has emerged as one of the foremost themes in education, within which an open education movement has enthusiastically embraced digital technologies as the central means of participation and inclusion. Open Educational Resources (OERs) and Massive Open Online Courses (MOOCs) have surfaced at the forefront of this development, claiming unprecedented educational reform. This paper provides a critical perspective on these prominent initiatives, highlighting a tendency to view access to online material as the principal concern of the open education movement. It will analyse the portrayal of technology in academic literature and media coverage of OERs and MOOCs, suggesting underlying assumptions of technology instrumentalism and essentialism. Alternative perspectives will be offered, drawing on critical technology studies and the philosophy of technology. The inclusion of “open processes” is proposed, involving the active engagement of learners in participation and dialogue, as well as further critical explorations of the relationships between technology and education.

Keywords: access; critical education technology; MOOC; OER; online education; open; open processes

Introduction

A burgeoning open education movement is becoming established around an agenda of institutional transformation, calling for unrestricted access to educational materials and the diminishing of geographic and economic barriers to participation. At the forefront of this movement have been Open Educational Resources (OERs) and Massive Open Online Courses (MOOCs), educational projects which claim significant advances in utilising Internet technology. Emerging from MIT's OpenCourseWare project in 2001, OERs have received considerable endorsement from educational institutions worldwide (Caswell, Henson, Jensen and Wiley, 2008; Wiley & Hilton III, 2009; Hylen, 2006), and various government-supported or non-profit initiatives have surfaced in recent years (POERUP, 2012). OERs have also garnered recognition from international organisations, such as UNESCO and the European Commission, the former developing policy guidelines for the implementation and standardisation of OERs in higher education (UNESCO, 2011), and the latter seeking a public consultation on “opening up education” (European Commission, 2011). The MOOC began as a fringe experiment in networked learning (see Siemens and Downes 2008; Mackness, Sui Fai Mak & Williams, 2010; McAuley, Stewart, Siemens & Cormier, 2010) before being reconstituted and adopted by prominent universities. These institutionalised MOOCs, offered by Silicon Valley start-ups “Coursera” and “Udacity” as well as the Harvard and MIT collaboration “edX”, have received significant media attention, which has often inferred a radical destabilisation of the higher education sector (see Adams, 2012 and Marginson, 2012).

These high-profile initiatives are representative of an apparent commitment and enthusiasm towards technology within the open education movement. However, despite the centrality of networks, systems and software, the technologies associated with open education appear to be rarely subjected to in-depth consideration, beyond the analysis of user interpretations (for example Fini, 2009).

Methodology

This paper will provide a critical perspective on open education and its technologies. It will analyse selected academic literature and media coverage of OERs and MOOCs with the intention of understanding how “openness” and technology are understood and disseminated within the field of open education. It will highlight ways that “openness” is typically framed, and these perspectives will be related to assumptions about the role of technology in education.

Theoretical frameworks associated with the philosophy of technology (Dahlberg, 2004; Kanuka, 2008) and critical technology studies (Friesen & Hamilton, 2010) will underpin this analysis. While open access to learning resources may be of significant value in education, this paper will question whether free admittance to information is enough to realise the goals of universal education and economic prosperity often promised by the open education movement (see Atkins, Brown & Hammond, 2007; Caswell *et al.*, 2008; Daniel & Killion, 2012). “Open processes” are suggested as one way in which open access can be developed, requiring further acknowledgement of the complex relationships between technology and education.

Openness as access

The open education movement has tended to define “openness” in terms of “access” to educational material. This reflects an affinity with distance education, developed to address the geographical barriers to institutional contact (Downes, 2011). Much of the OER literature focuses on issues of access, and this has centred research around strategies for implementation or the development of supporting infrastructure (see Johnstone, 2005; Atkins, Brown & Hammond, 2007; Caswell *et al.*, 2008; Downes, 2011; Macintosh, McGreal & Taylor, 2011). OERs are founded on the idea of an information repository, exemplified in the proliferation of resource archives on the web (see OpenLearn, 2012; Connexions, 2012 and WikiEducator, 2012). Trust in particular OER repositories has been highlighted as a major factor in their adoption by teachers (Clements & Pawlowski, 2012). This tends to structure open education around a privileging of reliable sources of information as the prime factor in the learning process. Within this arrangement the role of teaching is often overlooked, and the chief concern becomes bringing learners into contact with trusted supplies of knowledge. Potential problems with OERs are often framed simply as “getting access to a high-speed Internet connection”, immediately followed by “once that problem is solved, the various types of resources can be quite useful” (Johnstone, 2005).

The institutionalised MOOCs advance a similar view on the idea of “open”, frequently promoting large-scale access. Coursera (2012a) proposes “to give everyone access to the world-class education that has so far been available only to a select few”, utilising technology which “enables the best professors to teach tens or hundreds of thousands of students”. The promotional content on the edX website similarly emphasises a desire to provide access to unprecedented numbers of students, with the president, Anant Agarwal, declaring “our goal is to educate a billion people around the world” (edX, 2012). Udacity underscores this trend, stating, “using the economics of the Internet, we’ve connected some of the greatest teachers to hundreds of thousands of students all over the world” (Udacity, 2012). These MOOCs operationalize the view that “open” constitutes an amplification in the number of participants coming into contact with their educational offerings. While these initiatives emphasise interactive features rather than static content, the dominant message is of the quantity rather than the quality of access.

Assumptions about technology

The dominant interpretation of openness as “access” may be bolstered by underlying assumptions about technology prevalent in educational research: those of instrumentalism and essentialism (Friesen & Hamilton, 2010). These philosophical perspectives conceive of technology either as entirely neutral, merely enabling the aims of educational endeavours but not influencing them (instrumentalism), or to possess intrinsic qualities (essentialism). The open education literature often depicts technology in a role of facilitating or empowering the learning process, however this stance tends to render the technology transparent in the resulting activity. Caswell *et al.* (2008) state, “new distance education technologies . . . act as enablers to achieving the universal right to education”. They go on to define technology according to its ability to straightforwardly reproduce and distribute educational content, yet the degree to which these systems might affect that content is not discussed (Caswell *et al.*, 2008).

This perception of technology neutrality is reinforced through the common educational designations “resource” and “tool”. Framing technology in this way “establishes a one way direction of cause and effect” (Feenberg, 2005, p. 48), in which the user of the tool is unaffected by the activity. The archival tendencies within the OER movement emphasise this relationship in which technology is positioned as a prosthetic to the learning process; an instrument considered only in its capacity for enhancement. This tendency for instrumentalism limits technology research to studying either the improvement or diminishing of learning (Friesen & Hamilton, 2010), and it is often the former that manifests in open education literature. This masks the ways in which the networks, systems and codes of open education might transform and affect the learning process. The open movement might look to Actor-Network Theory (ANT) in education (Fenwick & Edwards, 2010; Nespore, 2010; Edwards, Fenwick & Sawchuk, 2011) as a way of acknowledging the constituent role of networks and software in educational activity. ANT involves a redefinition of the notion of agency to include non-human elements. It is therefore a theoretical framework which can be used to consider how technologies influence and affect the human beings and environments in which they are involved.

Within OER literature, technology is also frequently inferred to possess the qualities attributed to its users.

Jay connects to the Internet via his laptop and mobile phone (he is *mobile*) in order to search Google for information (*digital* resources are *open* for him to freely access) . . . he chats with friends on the phone and by Instant Messaging (IM) to see if they can assist in his search (he is *connected* to other people) (Wiley & Hilton III, 2009 emphasis original).

In this hypothetical scenario, technology appears to function seamlessly with the various activities of the learner, possessing qualities that resemble the innate desires of the human being putting it to use. Wiley and Hilton III (2009) go on to describe technology as embodying the organisational changes required if higher education institutions are to reflect wider society. They suggest “connectedness, personalization, participation, and openness” as four key areas for educational transformation (Wiley & Hilton III, 2009, p. 8), yet each is suggested to transpire almost exclusively through technological means and from systems which appear to unproblematically personify these qualities.

The technologies of open education are too often implied to have an “independent and abstract pedagogical value” (Friesen & Hamilton, 2010, p. 8). This is often predicated on idealised interpretations of the Internet, sometimes assumed to be necessarily open through its capacity to increase access (see Brown & Adler, 2008). OERs are thus promoted as “technology-empowered . . . to create and share educational content on a global level” (Caswell *et al.*, 2008). This discourse of facilitation or empowerment forms a powerful rhetoric of educational change, yet it is too often embodied in the technologies of open education, rather than considered ideal or potential practice.

The hidden production of technology

The dominant assumptions of instrumentalism and essentialism shift attention away from the often complex ways that technology is designed and produced. Considerable work is needed within the open education movement to unveil the processes involved in the production of technology, acknowledging the broad pedagogical, philosophical and political presuppositions already encoded in the systems used. The practices of standardisation and coding have been highlighted as rarely acknowledged factors in the use of educational software, constituting a hidden curriculum (Edwards & Carmichael, 2012). This approach does not suggest that there are intentionally unproductive or malevolent forces being covertly imbedded into educational technologies, but rather that the effects of standardisation and coding practices cannot be predicted in their entirety (Edwards & Carmichael, 2012). This means that technologies have the potential to constrain as well as enable subsequent learning activities, influencing “the potential discourses, trajectories for inquiry, and student subjectivities that might emerge from such a learning environment” (Edwards & Carmichael, 2012, p. 12). This work is highlighted here to suggest that alongside discussions of the ways that technologies facilitate and support educational practices, an acknowledgement of the necessary limitations brought about through the production process is required if educators are to work towards a balanced understanding of technology use.

Therefore, while a particular digital technology might be deployed in accordance with acknowledged pedagogical theory, the coding embedded within the system can limit what is ultimately achieved. Coursera’s webpage on “Pedagogy” claims that:

A key factor in the design of the Coursera system is the extensive use of interactive exercises, which we believe are critical for student engagement and learning. Even within our videos, there are multiple opportunities for interactions: the video frequently stops, and students are asked to answer a simple question to test whether they are tracking the material (2012b).

Aligning the Coursera system seamlessly with the educational rationale of interactivity deflects a consideration of the ways in which such technology might itself promote particular degrees of inflexibility. For example, the moment at which a pause comes about in these video lectures will be predetermined, solidifying particular pedagogical assumptions about the correct time to activate formative assessment. Furthermore, the production of video itself necessitates distinct framings and arrangements of pedagogical activity, simultaneously hard-coding the communicative patterns of traditional didactic lectures into the very systems which claim innovation and interactivity. This is not to suggest that the production of technology should be granted more attention than the often valuable ways in which it is employed for educational purposes, but merely to call for its inclusion as a constituent factor.

Participation and open source culture

The ability to modify and repurpose OERs has been a central strand of their promotion. The notion of “remixability” is often posited as a way to ensure flexibility and relevance to differing cultural contexts and pedagogical practices (Brown & Adler, 2008; Downes, 2007; Hilton III, Wiley, Stein & Johnson, 2010; Johnstone, 2005; Wiley & Hilton III, 2009). However, true to form, technology is too often neutralised in the activities of repurposing. “Editing, adapting, or otherwise changing educational materials to be more appropriate for a specific use is technically straightforward thanks to the variety of technologies currently available” (Wiley & Hilton III, 2009, p. 9). Here the principles of remixing are proposed to transcend the technologies which make them possible. However, this orientation masks the ways in which the very activities of editing and adapting evolve from

technology infrastructure and design, as much as they do from human inclinations. The repurposing and adapting of digital content does not begin and end with the desires of the person doing the remixing, but emerges from interactions with what is made possible through the predetermined code present in the software.

Open source software, the movement from which the open education agenda has largely derived (Caswell *et al.*, 2008), offers one way for these hidden coding practices to be further exposed. The edX platform, as well as the new “CourseBuilder” venture from Google (Course-builder, 2012), are promoted as open source, signalling a possible move towards more open and participatory practices. However, as Edwards and Carmichael (2012) caution, open source culture, rather than promoting detailed examinations or analyses of code, often encourages the practice of assembling software from pre-written component parts. Such ‘openness’ may well serve the purposes of software production where the objective is to create a functioning program rather than to understand how it works. However, ‘openness’ in education could seek more than this. If technologies do indeed limit, but also enable, particular forms of learning, understanding how software functions could be integral to the fostering of critical thinking skills, promoting a culture of openness in which *how* we learn is given as much consideration as *what* we learn. Rather than promoting the idea that openness simplifies technology, continued research in open education may benefit from perspectives which acknowledge the growing intricacies and amalgamations which influence its production. Beneath increasingly mild and effortless user-interfaces or expanding compatibility across platforms and devices lies deepening complexity. For the open education movement to render such efforts transparent, constitutes a kind of “benevolent concealment” (Edwards & Carmichael, 2012, p. 6).

The fetishization of knowledge

A dominant discourse of open access has contributed to an over-emphasis on content at the expense of context. This orientation has significant implications for the ways that educational activities can be perceived, and open education initiatives frequently appear to fetishize knowledge as a consumable object.

all the basic knowledge, all the refined physics, all the deep mathematics, everything of beauty in music, in the visual arts, all of literature, all of the video arts of the twentieth century can be given to everybody everywhere (Caswell *et al.*, 2008, p. 9–10).

Knowledge is portrayed here as a desirable object, immune to the influences of digitisation, interpretation or cultural understanding. The vast majority of OER initiatives are based in the UK and the US, far outweighing the scarce offerings from African, Asian or Latin American countries (POERUP, 2012), perhaps indicative of who is ‘giving’ such knowledge to the world. OERs are often popularised in the mainstream media as a solution to third world poverty (see Daniel & Killion, 2012). However, couching this technology in a discourse of economic benefit and emancipation merely serves to situate education in a role subservient to a functioning capitalist economy, and supposes the purpose of learning to be the increase of human capital (Atkins *et al.*, 2007). Daniel and Killion (2012) extend their notion of openness to include the interests of employers in determining the content of OERs in a move to boost employability. However, in foregrounding open access as the ultimate exercise of educational freedom, Daniel and Killion (2012) appear to mask the simultaneous surrender of content to the concerns of business. While openness is promoted as unrestricted access to information, the forces which determine what that information should be remain closed. This excessive attention to access reduces the desires of non-western peoples to an interest in retrieving content. Rather than simply making information available for consumption, Richter and

McPherson (2012) have called for improved educational justice through the ability to finitely adapt OERs to individual contexts and cultures. However, while this presents one way in which the OER movement could become more culturally sensitive, it surfaces underlying questions about the extent to which resources can be repurposed without diluting the goal of universal education.

While adaptability has been central to the OER movement, the recent upsurge of institutionalised MOOCs may be reversing this trend. In this context, “open” means free access to the educational content of a prestigious university, illustrated succinctly by the tagline on Coursera’s website: “Take the World’s Best Courses, Online, For Free” (2012c). Here students “take” educational content, rather than edit, remix, or contextualise it. The institutionalised MOOCs reinstate rigid and often idolised content, where hundreds of thousands of students are expected to consume identical curricula, predominantly through video lectures. While the technology provides elements of interactivity not always present in resource repositories, “openness” is framed almost exclusively in terms of access to predetermined content. The subject matter of these MOOC courses is necessarily non-negotiable; their reputation rests on the lofty prestige of the elite institutions that supply the content.

Conclusions: Open as “process”

To overemphasise the role of technology, as sections of this paper have done, may also provide an impoverished understanding of the complexities of open education. Therefore, rather than dismissing open access, the intention of this paper is to emphasise how these important developments might be enhanced when “openness” is perceived as a process.

Conole has suggested a movement away from stockpiling OER repositories (Conole, 2012). Work in this area has promoted online communities for the creation and sharing of OERs amongst teachers (Tosato & Bodi, 2011) and studied open practices amongst learners (Mwanza-Simwami, McAndre & Madiba, 2008). Such approaches have acknowledged the need to foster collaborative communities rather than focus on content. Okada, Mikroyannidis, Meister & Little (2012) propose strategies for involving social networks in the production and repurposing of OER, encouraging individual interpretations of content and the sharing of feedback. At the core of this strategy are processes of co-authorship and exchange (Okada & Leslie, 2012), rather than the consumption of authoritative information. Described as a “process of sensemaking, understanding and creating knowledge together” (Okada *et al.*, 2012, p. 17), this approach explicitly involves learners in the activities knowledge production. However, alongside these proposals for open educational practices, there are concerns about the lack of uptake and repurposing of OER (McAndrew *et al.*, 2009; Conole, 2012). While this may be related to the prevailing discourse of “access” highlighted previously, to perceive that open practices will provide a simple solution might be equally reductive. A focus on practice—the ways in which technologies are used—tends to overemphasise human agency. In calling for the technical processes of producing and repurposing OERs to be made more accessible, Okada *et al.* (2012) seem to maintain the dominant instrumentalist view. To foreground accessibility exaggerates the autonomy and intentionality of user(s), qualities which become abstracted from the affordances and limitations of the technology itself. It is therefore suggested that the open education movement may benefit from a more rigorous engagement with the philosophy of technology.

Dahlberg (2004) suggests that the field of Internet research has tended to assume one of three deterministic orientations regarding the influence of technology: “uses”, which privilege the ways that technology is used; “technological”, which foregrounds the qualities of the technology itself; and “social”, in which societal systems are emphasised. In relation to education, Kanuka has described these orientations as one-dimensional, suggesting that “little, if any, attention is given to the effects

of educational, social, and historical forces that have shaped both educational systems and educational technologies” (Kanuka, 2008, p. 101). Dahlberg (2004) calls for a non-reductionist approach, that “is sensitive to the complex interplay between multiple elements” acknowledging “that each so-called determining factor is itself embedded within and constituted by a system of inter-linked constitutive processes”. This offers one way in which the open education movement might further its agenda of “openness” by placing its own practices with, and perceptions of, technology under critical scrutiny. Rather than promoting “openness” as a transcendent societal ideal, or as an essential quality embedded within Internet technologies, research could begin to engage with the ways that individual agencies, social systems and technological production are deeply involved in each other. While OERs and MOOCs offer valuable and meaningful contributions to current practices in education, this work could be complemented with research which exposes the intertwined and contingent relationships between “openness”, technology and society. Thus, open processes might involve the exposition of social, economic, political and educational factors that have influenced the production of technology infrastructures, as well as the forms of open education that are subsequently made possible. It would also need to contend with the ways in which the networks, systems and software associated with OERs and MOOCs enable and constrain the activities of learning, ultimately shaping the educational and societal domains which have produced them.

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Multimodal profusion in the literacies of the Massive Open Online Course

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This paper takes a view of digital literacy, which moves beyond a focus on technical methods and skills in an attempt to maintain a broader approach that encompasses a critical view of the learning subject. In doing this, we consider socio-materialism and its relation to aspects of literacy theory. We anchor the discussion in a consideration of the 'E-learning and Digital Cultures' Coursera MOOC, which provided a tangible setting for theorising some of the practices of digital literacy differently. The profusion of multimodal artefacts produced in response to this course constituted a complex series of socio-material entanglements, in which human beings and technologies each played a constituent part. Two specific digital artefacts are analysed according to these terms. We conclude that socio-material multimodality constitutes a different way of thinking about digital literacy: not as representational practices, but rather as multifaceted and relational enactments of knowledge, specific to particular contexts and moments.

Keywords: digital literacy; multimodal; socio-material; MOOC; enactment

Introduction

Digital literacy is the latest in a succession of technological tags and catch-all phrases proposed to encapsulate the educational response to computer systems (for an extensive list see Goodfellow 2011, and for a discussion of origin see Bawden 2008). While there is no all-encompassing definition of digital literacy (Oliver 2012), Goodfellow and Lea (2007) usefully emphasise the distinction between 'digital literacy' as a set of skills or competencies located 'within' an individual, and 'digital literacies' as a more complex engagement with a shifting, volatile 'range of socially and culturally situated practices' (p. 5). Our use of the term in this paper has more in common with the plural usage, though the emphasis here encompasses the socio-cultural alongside, and in intimate relation with, the material. Digital literacies sit within a field which often assumes that inevitable changes are sweeping both educational institutions and the wider society; changes that are signalled by the increasing ubiquity of digital networks in particular.

Where digital literacy is understood as a set of identifiable skills it is often related to future projections of social and academic life. Competencies such as searching and managing information, aggregating and re-using existing resources, and expressing ideas with multiple forms of media are proposed, to which students, employees and

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citizens progress through training, while having no share in deciding what those future competencies might be (Beetham, McGill, and Littlejohn 2009). JISC situates digital literacy training as an essential requirement for potential employment; skills not necessarily required for an individual's current situation, rather as an investment in a future working self (for example JISC 2013). These competency-based understandings frame the individual as in deficit; demanding the acquiring of digital abilities in order to remain within societal constructions of 'competent'; such a critique aligns with a wider concern about the transformation of higher education into a sector subservient to the economic forces of a neo-liberal political philosophy. It is habitually the responsibility of the individual for becoming digitally literate which is foregrounded, where wider political and economic factors which shape such independence are often neglected.

Elsewhere, digital literacy is framed as essential for the contemporary present. Such 'literacies' are not only perceived as central to an individual's ability to function in society, but also as bestowing 'social 'normality' on its owner' (Goodfellow 2011, p. 131). Such 'normal' contemporary living might involve the use of social media, often considered to be increasingly important to the ways that people communicate across the 'developed' world. Where the technology is supposed to be ever more pervasive, the standard model of human being must be furnished with the appropriate digital dexterity. From this perspective, being digitally literate is no longer a supplement, but a core requirement and a matter of survival.

Broader approaches within the socio-culturally oriented 'digital literacies' emphasise social meaning-making practices with technology. Lankshear and Knobel (2008) call, not for generic aptitudes, but multiple, various and adaptable digital proficiencies. The focus here is on the ability to create, interpret and communicate meaning within cultural contexts, rather than simply formulating lists of definitive skills. Such approaches have been suggested to adopt a 'socio-cultural framing' of literacy, which serves to blur the specificity of the term (Goodfellow 2011). Goodfellow (2011) highlights this as a problematic merging and homogenising of both terms in 'digital literacy', such that technical and cultural sensitivities and distinctions are removed. The disciplines of ICT, computer science, communication and media studies are conflated into an all-encompassing 'digital', over which students are compelled to gain mastery. This calls into question the use of such a catchall label, given the range of diverse community and institutional stakeholders, and the array of technological infrastructures, protocols and codes that impose themselves upon the given task (Goodfellow 2011).

Narratives that situate 'digital literacy' skills as indispensable, justified by projections of far-reaching societal change, are surprisingly pervasive. Ulmer (2003) proposes 'electracy' as an exploration of how we might use internet spaces to work towards a new social and epistemological formation which belongs to the digital age. As Ulmer (2003) says, 'electrate peoples who experience thought as virtual image will organize collectively in some new way that has not come fully into view' (p. 8). While 'electracy' maintains a distinction between the skills required to engage with printed text and those necessary to maximise the promise of digital media, 'transliteracy' has sought a broad definition of literacy to encompass multiple modes and communicative practices, in which digital technology is merely one constituent part (Thomas *et al.* 2007). Transliteracy is the call for a blurring of distinctions between print-based and digital media, positing instead a 'unifying ecology' of communicative and interpretive skills (Thomas *et al.* 2007, no page). However, this aptitude appears to be

located as an innate human quality; a universal facility for engaging with mediated communication, anterior to and distinct from both the information and the means. Furthermore, the non-linear historical approach of transliteracy appears to situate the activities of communication exclusively between human beings, with technology serving as medium and instrument. The notions of acceleration and amplification of communicative capacity tend to suggest intuitive, essential and universal human qualities, just waiting to be improved by successive technological innovations.

While this overview of literature on digital literacies is highly selective, it is intended to highlight a prevailing focus on competencies that are obligatory for present and future societal participation. Whether levelled at the individual, institutions, or society as whole, the ability to communicate with, create meaning from, and interpret the multimodal characteristics of digital media appears mandatory. However, we suggest that these general orientations tend to situate technology in an instrumental role, as the (more-or-less) neutral means of achieving pre-defined educational goals (Friesen and Hamilton 2010). Crucially, these formulations of digital literacy preserve an epistemological orientation that separates us from the technologies we use and the material world around us. The next section will outline socio-materialism, and propose it as an alternative basis for the discussion of digital literacy.

Digital literacy and the socio-material

The ‘socio-material’ encompasses a broad range of theoretical approaches to the relationships between the social (human) and the material (non-human). Thus, it entails a decentring of the subject and a challenge to many established educational orthodoxies (Fenwick *et al.* 2011; Fenwick and Landri 2012), and much of the discourse around digital literacy and competence. It derives from post-foundational philosophy in perceiving objects, properties and boundaries to be enacted by assemblages of human and non-human relations, rather than being anterior to these. Socio-material theory is often associated with a ‘materialist turn’ which attempts to counter what is perceived to be an over-emphasis on the socially constructed and discursive in explanations of social entities and organisations. In this discussion of education in the digital – a domain often construed as ‘virtual’ and so ‘immaterial’ – we interpret the material to be those facets of the software, infrastructure and algorithms of the web that can be understood as acting in a way which is not simply about the ‘intention’ of their human designers or users. This does not mean that we consider them to be entirely autonomous, but rather as non-human elements continuous with and always related to the human.

Specifically in relation to education, the ‘socio-material’ is suggested by Fenwick, Edwards, and Sawchuk (2011) as an over-arching term for a range of approaches applicable to educational research and practice: complexity theory, Actor-Network Theory, Cultural Historical Activity Theory and spatiality theories. While marked by particular distinctions, these theoretical areas are suggested to converge on the concern for ‘conceptualizing knowledge, capabilities and subjectivities as emerging simultaneously in webs of interconnections among heterogeneous entities: human and non-human, social discourses, activities and meanings, as well as material forces, assemblages, and transformations’ (Fenwick *et al.* 2011, p. 2). It is not our intention here to focus on any one of these specific approaches, but rather to explore instances of this broad orientation toward human and non-human agency and assemblage, something we suggest is under-represented in the digital literacy literature. Neither

do we perceive socio-material approaches to be an ‘all-seeing eye’ for research. As Mutch (2013) cautions, a tangible grasp of the material is often difficult and ‘social structures are not necessarily transparent’ (p. 32).

Significantly, socio-material theory is described as an interest in the situatedness of educational processes and the relations between them, rather than with individual teachers, students, or technologies (Fenwick and Landri 2012). Thus, it may provide productive alternatives to work in digital literacies, which tends to perceive context in predominantly cultural terms (Lanshear and Knobel 2008). Socio-material theory suggests that learning is embedded in action and emerges through practice, processes that produce the objects and characteristics of educational events. Fenwick *et al.* (2011) draw upon much more established traditions of educational theory to claim the ontological indistinguishability of practice and learning in socio-material perspectives. However, their purpose is to foreground the role of the material in analysing educational practices (Fenwick *et al.* 2011). Educational spaces and objects, in this view, are not considered to be merely backdrops to learning activities, or tools with which to improve educational performance. Rather they are the emergent results of enmeshed social and material enactments. Thus, Fenwick *et al.* (2011) distinguish their relational socio-materiality from more established theoretical areas which, while taking the material into account (e.g. classrooms, buildings, objects), maintain the separation of the human and non-human (the classroom as a ‘container’ for educational practices, for example). The view of the material as a set of ‘mere instruments to advance educational performance’ (Fenwick *et al.* 2011, p. 1) reflects many of the considerations of technology in the digital literacy literature. As an alternative, we propose here an approach which takes into account co-emergence, interdependence and mutual constitution in the consideration of multi-modal practices and digital literacy. From this perspective all roles, identities or characteristics are performed by the socio-material assemblage, rather than pre-existing it suggesting, significantly, a blurring of the focus on human intention (Fenwick *et al.* 2011; Hannon 2013). We draw upon socio-material theory therefore, as a challenge to the essential human subject routinely preserved and privileged in the field of digital literacies. Rather than remaining within an ontological structure that maintains an authentic, rational learner contained within the sanctity of the corporeal, a socio-material approach will allow us to explore the hybrid connections and embodied possibilities of educational practices in and among the digital.

Socio-materialism, we suggest, may be a productive way to engage with literacy perspectives that encompass notions of complexity and relationality. Goodfellow and Lea (2009) discuss the hybridity of literacy practices in various institutions; they draw our attention to multiple modes of engaging with resources, both conventionally on- and offline, and the intermingling of various hardware and software. Transliteracy, in turn, posits that a range of analogue, digital, historical, cultural and contextual factors shape how an individual interprets a learning task, as well as what kind of work is produced in response. As such a contingent ‘lifeworld’ is proposed as a ‘physical environment and subjective experience’ (Thomas *et al.* 2007, no page), which influences communication and interpretation. Such relations might usefully connect with the socio-material concern for assemblages, networks, and spatial orderings, rather than remaining focussed on the experience of the subject and its essential human characteristics. Descriptions of specific technologies hint at possible alternative readings: ‘a Flickr image is understood not as an isolated event but in conjunction with the user’s knowledge about what a Flickr page is; what prompted

that person to post it, and why 16 people left comments. It's not just a photo collecting technology' (Thomas *et al.* 2007, no page). Thus, while a sense of distributed agency is detectable here, the focus appears to be solely on the intentions and interactions of human beings, disregarding the website itself and the various technologies involved in producing, uploading and accessing the image. Occasionally a more expansive notion of relational subjectivity surfaces: 'Transliteracy happens in the places where different things meet, mix, and rub together. It is an interstitial space teeming with diverse life-forms, languages in many voices, many kinds of scripts and media' (Thomas *et al.* 2007, no page) and '[t]he 'patterned ways' of transliteracy are multiple, varied and often physical. A sense of how it feels to hold a feather quill, chisel stone, type on a keyboard, or take a photograph, is important and helps connect the material product . . . to the means of production' (Thomas *et al.* 2007, no page). While the material features here, these actions are framed entirely in terms of skills acquisition, and the differing 'tools' seem to be transparent instruments in the pursuit of a universal social communication. We therefore want to suggest that approaches such as transliteracy can be developed to include critical perspectives on technology and the subject so that multimodal practices can be viewed as socio-material enactments. It is not just graphocentrism that can be destabilised in the theorisation of digital literacy, but anthropocentrism as well.

In the next section, we suggest that the profusion of multimodal artefacts produced within a particular context – the E-learning and Digital Cultures MOOC – provides a tangible and profound opportunity to theorise digital literacies differently using ideas drawn from the socio-material. Our analysis will focus on the capacity to decentre the human as the sole agential force by acknowledging and bringing to the fore relations that connect and hybridise educational enactments in the digital. The key socio-material dimensions of this analysis will be the continuity of materiality and representation; the ways that relations alter connecting elements; and how these processes of hybridity perform particular knowledges and subjectivities.

The E-learning and digital cultures MOOC

'E-learning and Digital Cultures' was a Massive Open Online Course (MOOC) that took place in January 2013 and became known by the acronym EDCMOOC. A total of 42,000 participants enrolled on this course, which was developed and taught by a team of teachers and researchers from the University of Edinburgh's fully online MSc in Digital Education, and delivered on the Coursera platform. The course sought to explore the intersection of digital and learning cultures online, and comprised a 5-week programme of public domain videos and open access literature from cultural studies and education. While formally a Coursera offering, the EDCMOOC strategy was to encourage participant activity outside of the central platform. There were neither predefined course spaces nor limits to the kind of web services one might use to participate, beyond the initial suggestions of Facebook and Twitter and the recommendation that work be publicly visible. This approach served to create a distributed and emergent course space in which diverse activity and multimodal production could take place.

The lack of formal course structure and the ambiguity of predefined course activities compelled many participants to respond by organising their own methods and strategies for involvement. The act of participation became the 'making sense' of being in digital space. This manifested as a profusion of multimodal artefacts,

produced before the official start date, throughout the duration of the course, and in response to the final assignment. To be digitally literate in the EDCMOOC became a matter of responding to a distributed and relatively amorphous educational space, and using digital media to enact a sense of participation. The term ‘digital artefact,’ while being the specific term used for the final assignment in the EDCMOOC, will be used subsequently to refer to any and all multimodal student-produced work created in response to the course.

Digital literacy has been described as a blurring of academic and cultural knowledge (Carpenter 2009); it is our suggestion that MOOCs sit precisely at this juncture of the institutional and informal, providing a fertile space for the theorisation of educational, social and technological intersections. However, we suggest the scale of participation in the EDCMOOC disrupted further boundaries. The unprecedented rate, magnitude and localised intensity of multimodal production shifts attention away from the instrumental capabilities of the individual, or the affordances of isolated technologies, and brings to the fore the complex, relational and fluid entanglements of socio-material practices. The following will discuss the profusion of digitality and multimodality in the EDCMOOC, and provide a focussed analysis of two specific artefacts.

Figure 1 depicts a section of the ‘EDCMOOC Digital Artefact’ Wallwisher, a message based collaborative space that came to accommodate 331 depictions of digital artefacts from the course. While this web page exposed only a small proportion of the 1719 final assignments submitted, and a fraction of the digital work created throughout the duration of the course, it is illustrative of, we suggest,



Figure 1. A section of the EDCMOOC digital artefact Wallwisher, illustrating the profusion of multimodal enactments http://padlet.com/wall/edcmooc_artefact

a profusion of multimodality unprecedented in typical educational scenarios. The experience of encountering such an abundance of multimodal work (experienced by all who participated, both instructors and students alike) had the consequence of shifting focus away from any one producer and towards an intricate and relational socio-material mix. Many participants chose to use the same services, such as YouTube, Xtranormal, Prezi, ThingLink and Videoscribe. Thus, multiple artefacts were created using the same service, and while the individual use was distinct, the repetition of technical functions remained the same, serving to highlight pre-programmed effects; those features of the multimodal that are algorithmic, material, and non-human. This prompts a more in-depth analysis of specific digital artefacts.

The EDCMOOC final assignment submission ‘World Builder: a crowd-sourced tag heart’ (Figure 2) is illustrative of the intricate assemblages involved in multimodal digital work. The piece is a ‘tag-’ or ‘word-cloud’; a visual representation of text in which single words are displayed in various font sizes according to the frequency with which they occur, and the overall collection arranged to resemble a familiar shape. While it appears as a finalised, stable and contained image, various activities and processes have come together to produce it, involving a number of EDCMOOC participants and a range of web spaces and services. The following analysis is specific to the digital artefact in Figure 2; however, similar word-clouds were created throughout the EDCMOOC, and the claims made here for socio-material complexity can be attributed to much broader course activity.

The text used for this digital artefact was produced in response to one of the video resources used in the course. ‘World Builder’ (Branit 2007) is a short sci-fi film, depicting a male character that creates an idyllic computer generated holographic environment for the cognitive enjoyment of an apparently comatose female. It is a film which features themes of simulation, immersion in technology, virtuality, and artifice, and these were the interpretations proposed by the course tutors alongside an



Figure 2. ‘World Builder: a crowd-sourced tag heart’ by John O’Neill, digital artefact created for the EDCMOOC: <http://www.tagxedo.com/artful/f2c519c2502249f9>

embedded instance of the video within the Coursera site. If we are to identify a starting point or source for the 'World Builder: a crowd-sourced tag heart,' it is perhaps this mix of (dialogue-less) video and the textual interpretation provided within Coursera. However, origins are perhaps not so simple to ascertain, as the video is simultaneously located on the video-sharing site You Tube, where it is situated in an entirely different web space. Here it is flanked by 'recommended videos' determined by algorithms that measure both meta-data and user activity (Davidson *et al.* 2010), and buttressed with thousands of public comments which provide alternative interpretations.

The discussion inspired by these spaces took place within a Coursera forum thread, comprised of 85 separate posts and replies from 73 identified and 2 anonymous posters, and it was from this body of text that the word-cloud was derived. A number of these posts quote or refer directly to the interpretations and questions posed by the course tutors; text which not only informed and shaped the subsequent discussion, but also fed directly into the word-cloud generator. The body of text is thus irreducible to a single intention or agency, and derives rather from a distributed array of participants. The gamut of contingencies responsible for the 'World Builder: a crowd-sourced tag heart' are not, however, entirely discursive. It is our contention that the different spaces in which these interpretations and discussions took place, and the various technologies which underpin and co-create those digital environments, significantly shape the resulting digital artefact, and cannot be reduced entirely to human intention.

Mostly prominently perhaps, is the algorithmic process that produces the word-cloud, in this case from web service 'Tagxedo,' performing a number of automatic processes upon the source text. This includes the variables 'emphasis' and 'tightness'; the former controlling the increase in font size in relation to the frequency of words encountered, while the latter regulates how the collection of words is arranged within the over-arching shape (Tagxedo, no date). Both these variables can be customised by the user, but also impose automated and pre-programmed conditions upon the resulting image, the effects of which cannot be attributed exclusively to the programmer, the end-user, or the code itself. Furthermore, the Tagxedo algorithm executes a number of processes in which the end user has no control; including the removal of pre-determined function words (is, at, the, etc.) and the combining of different tenses, known as 'stemming.' Additionally, the heart shape which this digital artefact appears to resemble is also produced algorithmically from an encoded template; a process which determines the position and proximity of words. The intermingling words and algorithms of 'World Builder: a crowd-sourced tag heart' thus embody the simultaneity of material processes and symbolic representation. It thus expresses a non-dualistic and relational ordering of the world, in which 'matter is not dialectically opposed to culture, nor to technical mediation, but continuous with them' (Braidotti 2013, p. 35). Codes and discursive meanings operate concurrently to produce the artefact. 'Social' and 'material' do not remain distinct dimensions that interact, rather words change how the algorithms operate, and they in turn alter size and order of the text, and thus the discursive interpretations that might be construed.

The 'final state' of this digital artefact also, we suggest, troubles the prevailing notions of digital practice. 'World Builder: a crowd-sourced tag heart' 'exists' in a number of web locations: the Tagxedo website, the Flickr photo-sharing service, and the student created digital artefact 'Wallwisher' (a collection of final assignment submissions see Figure 1), spaces which re-contextualise the work, entangling the

linguistic and visual features of the piece with different themes and settings. Moreover, the Tagxedo output is interactive; each word serves as a hyperlink to a Google search based on that term. Thus the artefact can be viewed, not simply as a contained piece of work with specific and fixed properties, but as also involving relations with exterior spaces, constituting the virtual capacities of an assemblage (DeLanda 2006). Therefore, to abridge the complex processes that have produced this image to the intentions of a lone student and an absolute list of competencies would seem to disregard the array of socio-material and relational conditions necessary for it to have come together. Rather than representing knowledge *about* the film or the course, the artefact performs knowledge through relational interplay between the participants, their discussions, and the abstracted software algorithms of the web. We will return to this point in the next section. Furthermore, to consider ‘World Builder: a crowd-sourced tag heart’ as a confined representation of knowledge would appear to discount its capacity for connection and re-appropriation, and ultimately the instability of the digital.

Our second example – the digital artefact ‘E-learning and Human 3.0’ – was created with ‘Videoscribe’ presentation software, rendered as a video and uploaded to YouTube (Figure 3). It exemplifies a number of layered processes that are embedded in digital systems, ordered through multiple relations and contingencies, and typical of a range of EDCMOOC multimodal practices. The presentation consists of text and images, accompanied by the animated reproduction of a hand pre-programmed by the software to appear as if it is inscribing the words and sketching the visuals. Such presentations are created by inputting and positioning text, choosing from a library of pre-set images, and selecting a preferred limb with accompanying writing implement for the animation (see Figure 4). Once the arrangement is complete, the software provides a ‘play’ feature which will animate each element in the presentation



Figure 3. ‘E-learning and Human 3.0’ by Nick Hood, digital artefact created for the EDCMOOC: <http://www.youtube.com/watch?v=6JPq60Hd8CE>

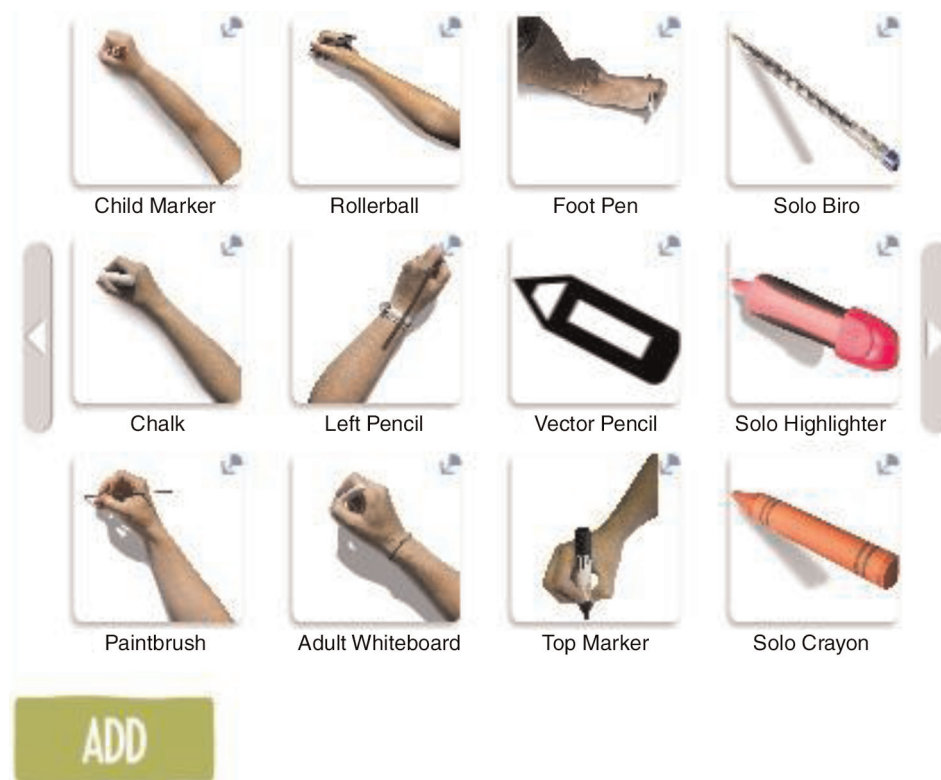


Figure 4. Limb and writing implement choices from the 'Videoscribe' presentation software.

by making it appear to emerge gradually from the movement of the image of the writing hand.

Videoscribe represents an archetypal 'black boxing' of digital media effects and processes (Fenwick and Edwards 2010). Rather than presiding over each and every detail of the process, users select from a number of predetermined visualisations and animations, an arrangement which reduces author control. Videoscribe thus illustrates a tension between software accessibility and usability on the one hand, and openness and user agency on the other. The more polished the user interfaces, the more sophisticated and inaccessible the underlying code (Edwards and Carmichael 2012). The focus on interface usability is indicative of perceiving software in terms of a 'tool' or 'application' that can accomplish particular tasks, such that the use of technology becomes 'seamless and unremarkable' (Edwards and Carmichael 2012, p. 5). The inconspicuous educational activity produced here is a 'whiteboard-style' presentation, complete with the writing hand of the teacher and accompanied with a pre-recorded voiceover. However, a socio-material approach might help us to consider this, not simply as an expression of competence in the digital domain, reproducing classroom practice through multimodal technologies, but rather as composite ordering of space, absence and presence.

The sound of the voice and the moving image of the hand are multimodal embellishments which attempt to centre a human author as present and in command of the learning activity, while the presentation format itself draws upon notions of established classroom spaces and a linear lecture-type arrangement. However, the

supposed corporeality of the teacher here is the result of encoding practices which conceal non-human agencies. This is most notable in the image of the hand which has not only been selected from a library of pre-set images, thus deriving from a different body entirely from that of the 'author' (Figure 4), but is also animated with software that precedes the text and images that it might render in the final piece. The body of the teacher is thus performed here through an assemblage of multiple bodies, codes and texts. The symbolic qualities of the teacher are not negated in this socio-material reading; rather they are shown to be simultaneously and co-constitutively non-symbolic, and non-human.

The apparently straightforward emulation of classroom space offered by the 'E-learning and Human 3.0' is equally problematic when we consider the specific conditions of its location in You Tube (see Figure 3), which we consider to be an integral part of the spatial ordering of the artefact itself. Of particular relevance here are the 'recommended videos' which border the artefact, and the comments which cluster below. Recommended videos are determined by a broad range of data, including meta-data associated with each video, a logged-in user's previous activity, as well as the viewing activity of others (Davidson *et al.* 2010). Not having access to the specific algorithms and codes that are here being considered in terms of the non-human or material may be problematic for an in-depth analysis, a criticism Mutch has levelled at socio-materialism (2013). However, the point is not to define exact processes or modes of activity, but rather to acknowledge that agency cannot be reduced to either wholly human or non-human foundations. We *can* say that this is a complex and on-going amalgamation of human intention, text and algorithmic process which persistently restructures the YouTube page, and thus the setting in which the artefact is situated, and the spatial ordering of which it is a part. As we can see in Figure 3, this range of factors has produced a diverse mix of educational and internet-related content, both personal and professional videos uploaded by the author, and animated films from Disney. This radically re-contextualises the conventional classroom space offered by the 'E-learning and Human 3.0' presentation. This seems to be a space in which knowledge, author, and absent You Tube user are enacted simultaneously.

What do these examples mean for digital literacy?

Underpinned by a philosophical approach that seeks to work against the dualisms that structure and maintain established orientations of representationalist thinking, we suggest that socio-material theory has profound implications for the concept of digital literacy. Representationalism can be understood as 'the notion that the world is brought into being by humans who go about knowing and naming observation-independent objects with attributes' (Scott and Orlikowski 2013, p. 78). Such designed entities are taken to be foundational; naturalised categorisations and distinct objects with which we interact, a process which masks the relational practices that have come together to produce, and maintain the representation. Thus a representationalist epistemology is suggested to produce the subject/object distinction, within which 'the world is made up of objects 'out-there' that we try to know 'in-here' – within the knowing subject' (Edwards 2010, p. 10). Therefore, in suggesting that socio-material theory be brought to the field of digital literacy, two crucial and interrelated, but not unproblematic, premises need to be explored: representationalism and anthropocentrism.

As illustrated in the ‘World Builder: a crowd-sourced tag heart’ example earlier, the complex and distributed factors which produced the word-cloud problematize the notion of representational knowledge. Can this digital artefact be measured in terms of how accurately it signifies the ideas intended by its creator, particularly as we have tried to question the notion of the autonomous author? Simply to consider what kind of ‘literacy’ is exemplified by ‘World Builder: a crowd-sourced tag heart’ would appear to dismiss the rich, situated socio-material practices which performed and instantiated the particular arrangement of words. Constituents of this enactment, as we have seen, are software codes and algorithms, which we consider to be independent actors (Edwards and Carmichael 2012). With reference to the website TripAdvisor, Scott and Orlikowski (2013) state that rather than viewing the algorithm as ‘as a mirror of conscious socio-technical choices – a snapshot produced from a passive collage of human intention – we have reframed it as a highly specific, active, partial, generative (performative) engine involved in re-making the world of travel’ (p. 78). The potential for exhaustive iterations encoded in the algorithm cannot be reduced to the foundational intentions of the programmer or be determined as the exclusive agency of artificial intelligence. Its inclusion blurs the simple causal relationship and thus the identification of representative meaning. In other words, where the production of knowledge is distributed and relational, the human mind would only be a constituent part of such an entanglement, and whatever its cognitive make-up might be, we could not define it as being identical with the wider socio-material assemblage. It is fruitless, we suggest, to attempt to disentangle ‘World Builder: a crowd-sourced tag heart’ from the processes of its production. Yet, the focus on defined competencies would appear to seek this kind of separation; defining digital literacy as a set of skills which can be measured in the production of digital artefacts through a transparent and anthropocentric meaning-making process.

As we have seen in the ‘E-Learning and Human 3.0’ digital artefact, educational space, and the presence and absence of the teacher might be considered the enactments of complex socio-material orderings, rather than naturalised or anterior realities. The intentional presence of a single human educator would be difficult to pinpoint, distributed as it is among encoded bodily characteristics and automated software processes. Such an analysis is productive because it encourages a critical rather than instrumental view of technology, urging deeper considerations of the political enactments that software and code are already implicated in. For example, all the default choices for animation appear to depict limbs with white skin (see Figure 4), calling into question the pedagogical and political neutrality of such educational ‘tools’. Digital literacy thus needs to contend with the cultural norms and beliefs that are already encoded into the technologies we use, and are performed by them in educational activity, rather than defaulting to the rhetoric of unproblematic empowerment, emancipation, or indeed professional competency through the utilisation of technology. A shift in perspective toward enacted events, rather than simple representations of knowledge, help to uncover the multiple agents, purposes and rationales that collide through educational activity. Both these artefacts suggest that digital literacy is not just a mix of different literacies (Oliver 2012; Thomas *et al.* 2007), but a meshwork of agencies. To be digitally literate, therefore, is to have already engaged in entanglements which decentre the autonomous learning subject. This blurs further dualisms, not just academic/cultural (Carpenter 2009), but also social and material. Ultimately, to engage in the production of multimodal

digital artefacts is to involve oneself in complex entanglements of contexts, cultures and technologies, of which the so-called human ‘producer’ is merely a constituent part.

The discussion of non-human agency is not foregrounded here for the purposes of suggesting that such processes can be examined, isolated and comprehended as exclusively ‘material,’ and thus allowing the discerning researcher to determine which precise elements of digital practice derive from human will. This would be to miss the point entirely. Rather, we propose that digital literacy be perceived as a practice always and already enmeshed in composite socio-material assemblages, in which human involvement needs to be recognised as partial, irreducible and sometimes modest. Edwards and Carmichael (2012) call into question the emancipatory ideal of utilising digital technologies for creative meaning-making practices, rather than simply consuming media. Digital literacy as liberation is premised on ideas of mastery, in which the user is re-centred and digital systems become subservient to human intention and their capacity to act discounted. We suggest that digital literacy can productively move forward by engaging with theoretical areas which de-centre human intention, and acknowledge the irreducibility and entanglement of socio-material factors in educational activity.

Conclusions

As we have seen, digital literacies are predominantly understood either as competencies or as sociocultural practices. We can perhaps view the habitual calls for culture change, institutional transformation, and individual ‘future proofing’ through skills-based training as a tacit acknowledgement of the ways in which human beings begin to lose the sense of stability and authority when educational activity enters the digital domain. Digital literacy, when considered as merely ‘up-skilling,’ is the attempt to regain supremacy and mastery in a territory devoid of the comforts of established disciplines and authoritative texts. Thus our focus here has been less on the scholarly merit of using digital media – a position which seems to preserve an epistemological orientation that privileges the human being – and more concerned with how to situate it as a practice, nevertheless a practice with pedagogical implications.

Decentring the individual is to move beyond notions of training and skills development, and to step towards viewing multimodal practices as socio-material enactments. Thus digital literacy can be theorised as a contingent, specific and relational practice. The creation of digital artefacts in the EDCMOOC constituted just such an enactment of digital literacy; complex in the sense that what was produced was drawn from a vast array of human and non-human agencies and contexts, but also specific in that all were responsive to and concentrated upon the course activities and content. Thus, rather than thinking of digital literacy as a set of obligatory skills derived from the demands of future labour, it becomes the collective enactment of knowledge in response to both distributed and centralised contingencies. The pedagogical value of this perspective would be to acknowledge the situated practices of digital work; to recognise the broader social and cultural contingencies that shape what we produce in educational contexts, as well as the embedded algorithms and codes of digital media that co-create the artefacts of the web.

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Digital culture clash: “massive” education in the *E-learning and Digital Cultures* MOOC

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While education has been both open and online, the sizeable enrolment numbers associated with massive open online courses (MOOCs) are somewhat unprecedented. In order to gauge the significance of education at scale, this article analyses specific examples of massive participation derived from *E-learning and Digital Cultures*, a MOOC from the University of Edinburgh in partnership with Coursera. Student-created content, user statistics, and survey data are illustrated to examine the experiences and repercussions of engaging with educational activity where participants number in the tens of thousands. This activity is shown to mirror established instructionist or constructivist approaches to pedagogy. However, rather than working with “massiveness,” these positions are suggested to oppose large participant numbers. Concluding remarks propose an irreducible diversity of participation, rather than a generalised categorisation of “student,” and call for future considerations of the MOOC to move beyond individualism and self-interest.

Keywords: MOOC; instructionism; constructivism; connectivism; individualism

Introduction

In response to the hyperbole about the institutional disruption and technical innovation imposed by massive open online courses (MOOCs) (see Adams, 2012; Lewin, 2012; Marginson, 2012; Pappano, 2012; Pérez-Peña, 2012), those working in open and online education have been keen to bring attention to the different histories and contexts in the field (e.g., Yuan & Powell, 2013). Weller (2013) described the prominence of MOOCs as merely the “visible aspect of a broader debate/battle/tension—which is around the role of openness in education” (p. 2), alluding to the considerable body of scholarly work in this area. Looking beyond the conventional claim that digital technology has been the primary determinant of the open education movement (e.g., Brown & Adler, 2008), Peter and Deimann (2013) have made the case for a rich tradition of open educational practices spanning from the beginnings of monastic scholarship, through the coffee house culture of eighteenth-century Europe. Peters (2008) also provided a historical analysis of “openness” through a discussion of Open Educational Resources, a movement which has prompted considerable research on cultures of sharing and reuse of material (e.g., D’Antoni, 2008; Hilton III, Wiley, Stein, & Johnson, 2010; Okada, Mikroyannidis, Meister, & Little, 2012; Richter &

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McPherson, 2012; Tosato & Bodi, 2011), or ways of bypassing institutional systems of accreditation (e.g., Macintosh, McGreal, & Taylor, 2011).

Additionally, many have challenged the pedagogical rationales of the institutionally affiliated MOOCs on the grounds that they do not offer anything disruptive to established educational practices (e.g., Bustillos, 2013). In questioning the value of the flipped classroom strategy endorsed by Coursera, Bogost (2013) declared, “The lecture is alive and well, it’s just been turned into a sitcom” (p. 11). Those critical of an impoverished pedagogical model often emphasise the origins of the acronym MOOC, coined in response to a much more radical and experimental course format (see Siemens & Downes, 2008) underpinned by the proposed learning theory of connectivism (Siemens, 2005). It is claimed that such histories and contexts have been largely overlooked, both by the promotion of Coursera, edX, and Udacity, as well as by those critical of the recent MOOC phenomenon (Stewart, 2012). Following from such concerns about whether the MOOC actually offers anything innovative or transformative, what follows is motivated by an interest in what might be genuinely new about this emerging educational format.

This article suggests that “massiveness” constitutes not only something unprecedented in education, but also something of significant value to continued work in an educational domain that is becoming increasingly global in its capacity and reach. In what follows, the case will be made that massiveness is more than simply large enrolment numbers. Such statistics are habitually emphasised in media coverage (Lewin, 2012; Marginson, 2012) and heavily publicised by MOOC organisations themselves, for example, Coursera’s dynamically updating figure for “Courserians,” at the time of writing over 6 million (Coursera, 2014). Huge enrolment numbers are also central to the promotional videos released by edX (2013), suggesting “imagine taking a class with a hundred thousand or more students.” Two further videos claim that edX’s ambition is to enrol a billion students from around the world (edX, 2012a, 2012b). However, this engagement with large numbers is largely based around the idea of education at *scale* (Stewart, 2013). In other words, it is the replication of an identical educational experience that can be transmitted to large numbers of students. The dominant considerations of massive participation have thus been concerned with productivity and “efficiency measures that hope to aggregate fewer higher-level (and higher-cost) educational encounters and standardize them for regularized future delivery” (Bogost, 2013, p. 13).

Stewart (2013) provides an alternative vision, in which massiveness is considered in terms of the opportunity to expose large numbers of students to digital literacy practices and networked environments. Here, the MOOC is judged to hold the potential to expose individuals to “open, decentred practices and distributed expertise” (p. 236). Thus, the massiveness of the MOOC has tended to be defined and understood in terms that reflect the xMOOC and cMOOC distinction (Siemens, 2012): either as the scaling of centralised and identical instruction to unprecedented numbers of students or the opportunity for self-directed learning, in which large participant numbers are understood as providing the means to construct knowledge independently of teachers and institutions (Rodriguez, 2012, 2013). As shall be discussed, these instructionist and constructivist understandings of education manifest as the dominant approaches to MOOC pedagogy. However, beyond such expectations, under-theorised in MOOC literature is the question of what happens when thousands of people come together and orient themselves around a specific arrangement of educational material.

E-learning and Digital Cultures

E-learning and Digital Cultures (known as EDCMOOC) was a five-week MOOC first offered in January 2013 and co-taught by the author. It was developed around the theme of “the digital” across education and popular culture. The course was split into two blocks: utopian and dystopian themes, and notions of the human being in relation to technology. The EDCMOOC utilised a range of public domain short films and open access academic literature as the primary resources. These were curated and annotated by the course tutors as the grounding for student activity, which included discussing themes in the Coursera forum and in personal blogs or other forms of social media. Two live Google Hangouts took place, in which the tutors talked about the weekly themes and emerging topics from student discussion. An image competition was held in week 3, inviting students to represent a course theme visually. The final assignment required students to create a multimodal digital artefact—an image, video, or web resource—that represented or explored any of the themes encountered during the course. These artefacts were to be made visible online for subsequent peer assessment. Peak enrolment on the EDCMOOC was 42,844, of whom 21,862 participants were measured as being active within the Coursera pages of the course, constituting a conversion rate of 51% (MOOCs@Edinburgh Group, 2013). The enrolment number places the EDCMOOC close to the typical MOOC figure of 50,000 enrollees (Jordan, n.d.); however, the measurement of active participation is considered more significant for this article. Nevertheless, the importance of this number is questionable when the design of the EDCMOOC is taken into consideration, as discussed below.

The EDCMOOC manifested a particular kind of massive participation: one that incorporated both the diversity and distribution of large participant numbers. This was the (not always intentional) result of three principal design decisions: the foregrounding of discussion and interaction as the main student activity, the inclusion of student-created work as course content, and the lack of formal group allocation. The course was designed with the intention of challenging what was perceived to be a prevailing tendency in Coursera MOOCs for transmissive pedagogy in the form of video lectures. The typical Coursera offering is behaviourist (Rodriguez, 2013), foregrounding pre-recorded video as the primary course content—the watching of which is predominantly a solo activity—frequently interspersed with multiple choice quizzes. In the EDCMOOC, public domain resources were curated and presented with the aim of encouraging students to explore, interpret, and discuss themes with some level of independence. The resources, in particular the short films and animations, did not provide definitive explanations of the course themes, but rather were intended to serve as stimulus for open-ended discussion and debate. Furthermore, there were no pre-determined learning outcomes or formative quiz testing, features which are somewhat standard in many other Coursera offerings. Thus, what the teaching team considered valuable in the EDCMOOC was not explicitly or exclusively contained within the teacher-curated resources, as they might be within a video lecture, or specifiable as definitive or universal outcomes. Rather, the emphasis was on responses to this material in the form of interactions and discussions, through which students might shape a particular understanding of the course themes. This orientation invited multiple interpretations and responses, which, due to the scale of participation, produced course themes that became diverse and multifaceted. This interpretation is not intended to negate the importance of the teacher-curated

material, or the role of the teacher, but rather to acknowledge the intention that course themes were to be expanded and developed by students.

As a result of such interpretations, forum activity, blog posts, and the use of social media quickly generated huge amounts of course content in addition to that placed on the Coursera platform by the teaching team. The forum within the Coursera platform acquired 1430 threads, containing 8718 posts and 5146 comments. Of the participants, 2615 posted in the Coursera forum and 1444 commented on existing posts. Outside of the Coursera pages, a blog aggregator was developed to collect and combine posts from the personal blogs of participants, and this was considered as a central resource for EDCMOOC material. This aggregator generated 1340 posts from 300 of the 900 submitted RSS feeds (Scott, 2013). During the course, 4820 participants joined the student-created Facebook group, which became a lively space for conversation and the sharing of additional content. A similar Google+ group attracted 1945 members. Twitter became a significant site of course activity in the form of communication and the sharing of blog posts and additional course-related material, utilising #EDCMOOC. In a period of build-up, duration and aftermath, from 7 November 2012 until 14 March 2013, a Twitter analysis reveals 18,745 unique tweets. The daily number of tweets peaked at 720 on 16 February. The considerable activity outside of the Coursera platform is indicative of the extent to which the EDCMOOC could be considered a distributed course space. It also may call into question the importance of the active participation figure derived exclusively from the Coursera platform. However, of primary importance to this discussion are the significant numbers of participants generating substantial amounts of course-related material. This created a compound effect, in which the more responses participants created, the more material was supplemented to the course content. This body of information rapidly became too immense for any single participant of the EDCMOOC to digest within the specified schedule and duration of the course. This was acknowledged by the teaching team in the course guidance, with students advised and encouraged to independently select content that was relevant or interesting to them.

Although the intention was for participants to respond to each other's work, no formal guidelines for the formation of groups were provided. As explored below, this proved to be a significant decision, primarily because it retained large numbers of participants in all aspects of the course activity and permitted all student-created material to be part of the main body of course content.

These aspects of the EDCMOOC design invited a particular kind of massiveness; one that is atypical, but also provides a noteworthy case for considerations of what happens when education involves large student numbers. The next sections discuss ways in which the participants of the EDCMOOC, alongside engaging in the specified activities of the course, began to respond to the experience of being involved in the course itself. Although often related to course themes, such responses surfaced as abstracted interpretations of the phenomena of MOOC participation. These meta-commentaries are discussed in two broad categories: reactions to the experience of large numbers and the offering of solutions to manage the massiveness of the MOOC.

I suggest that these responses are of significant interest due to indications about the backgrounds and experience of EDCMOOC participants. In the pre-course survey, 86% of respondents indicated that their highest level of completed academic study was at either undergraduate or postgraduate level, while 51% indicated that

they were employed in teaching and education. This suggests that a large proportion of the EDCMOOC participants may have had significant prior understanding and experience with the course topics and themes. It may also indicate ingrained expectations, or at least convictions, about how education should take place. Of the respondents in the pre-launch survey, 69.2% indicated that the EDCMOOC was the first MOOC that they had enrolled in; and 90% of evaluation survey respondents indicated engagement with the course in order to experience a MOOC. Combined with the indications of professional status, this could suggest that a significant proportion of EDCMOOC participants were active in order to form an understanding of MOOCs in general, rather than the specific course content. This also may explain the widespread meta-commentary on the experience of MOOC participation. In these ways, the following reactions and solutions to the massiveness of the EDCMOOC may serve as a useful insight into the range of understandings, perspectives, and approaches of established education professionals entering the emerging domain of the MOOC.

Reactions to the massive

The massiveness of the EDCMOOC was frequently perceived negatively. One of the most common reactions was the notion of being “overwhelmed.” The terms *overwhelming* or *overwhelmed* appeared 62 times in the Coursera discussion forum referring to participation in the EDCMOOC, and surfaced 52 times in the post-course evaluation survey in comments about the experience. The widespread use of this term is significant because it alludes to an anxiety about how the individual learner is positioned in relation to an external and superior force; something too large to comprehend or control. In this sense, the massiveness of the EDCMOOC appeared to represent an external threat to both the individual and the expectation of organisation and discipline in the educational setting. The Coursera forum and evaluation survey revealed a rich set of responses about the experience of participating in the EDCMOOC, which are categorised here into four broad and interrelated themes: metaphors of water, a sense of loss, overload, and noise.

Metaphors involving large volumes of water were particularly prevalent in the discussion forum during the course, and present an intriguing vision of massiveness in spatial and material terms. One participant suggested that “the course feels like an ocean so I’m making myself post this comment as a way of dipping one toe into the water.” Another stated “this course was a waterfall, and I only felt a few drops,” expressing an additional sense of loss at being unable to interact with all the material. These metaphors express a profound anxiety about the large volume of activity and information in the EDCMOOC, yet they also reveal how this concern is related to individual orientation and presence within the course. One poster suggested being “overwhelmed about how I find my niche and voice in this huge ocean of information.” The ocean serves to indicate both vastness and unfamiliarity here; an alien environment which the embodied individual is ill-equipped to navigate. Comments in the evaluation survey were similar, with one contributor claiming, “I felt my input would be lost in the sea of discussions.” Another participant expressed the ocean metaphor in more threatening terms with the suggestion that “the MOOC comes at you like a tsumani & simply swamps you.”

This sense of loss in relation to the vast and distributed discussions of the EDCMOOC was palpable in many comments. One participant suggested, “there are

just too many discussions happening, too many opportunities to miss key postings and threads. I felt I was always failing to keep up or get from the course what I wanted to.” Another added, “discussion and interaction was spread over too many systems/mechanisms, making it impossible to know what you might be missing.” This sense of failing to monitor or oversee all aspects of the course was often linked to the pace and weekly scheduling of topics, such as “once I slipped behind with the week’s material it was impossible to get back in line due to the volume of discussions.” Another participant claimed, “the discussion forums exploded on weeks 1 and 2 and as a result were virtually unusable if you were even a day ‘late to the party’ I felt.” These sentiments may be related to the status and work-related commitments of participants suggested previously. This idea of escaping content was articulated succinctly in a forum comment, describing participation as “the feeling of a runaway train.” Many of these comments also made notable references to issues of identity. One contributor summed up the experience with, “just felt big, lost, and just a number,” significantly linking the sense of loss with a disorientation and devaluing of the self. Therefore, the feeling of loss was not just expressed in relation to the idea of missing key course material, but also with regard to how participants perceived their own position and presence within the course.

Notions of “overload” in the evaluation survey often referred to the distribution and magnitude of discussions and resources. One commenter suggested, “I found myself overwhelmed with the pace of the course and the amount of new information thrown out there about websites, resources, platforms. I just did not know which one to follow.” Another stated, “I also felt overwhelmed and confused about all the different ways I could engage and suffered techno-overload trying to look at and read all the different media streams and such.” These observations reveal a significant concern about the perceived importance of course content. This frustration was apparent in the comment “it was overwhelming, how many social sites were involved, it felt like there was no way to fully interact in the course.” Despite guidance to be selective and self-directing in engaging with course material, many students had clear expectations about the need to absorb and participate in all that was on offer.

Student-created material was often considered excessive or superfluous. One commenter claimed, “it felt at times like the course was generating a lot of online pollution. At times the volume of online content created felt a lot like landfill.” The perceived worth of student contributions was frequently devalued in a similar way, attributed to a magnitude of activity often labelled as “noise.”

One participant claimed, “the volume of comments and postings became noise and interfered with my learning,” while another suggested “the ‘noise’ from all the students who wanted to shout their opinion (sometimes without listening the previous comments) was unbearable.” This sense of fragmentation and lack of cooperation was described elsewhere in terms of violence: “This was not a community – more like a cluster bomb. Comments felt like missiles shot at random by the individual posters.”

These themes indicate that many students come to such courses with expectations about content and participation that are sometimes neglected in the literature and promotion of MOOCs (Ross, Sinclair, Knox, Bayne, & Macleod, 2014). Rather than automatically manifesting a “learner-centred” environment, MOOCs can provoke anxiety about presence and orientation in relation to large-scale activity (Kop, Fournier, & Mak, 2011) and a sense of losing identity and individuality. Many

students also maintain the expectation that all content needs to be accessed in order to authentically experience a MOOC course. It also seems apparent that a significant proportion of students value centralised, institutionally endorsed content and are not necessarily willing to value peer contributions. These somewhat contradictory outcomes seem to counter what can be perceived as a naturalising of the ability to self-direct, independently discern effective connections, and seek support and endorsement from peers rather than teachers, encountered in some of the connectivist informed literature (Anderson & Dron, 2011; McAuley, Stewart, Siemens, & Cormier, 2010).

Visual work produced during the EDCMOOC image competition also expressed notable reactions to the experience of “massive education.” A particularly striking example was *All Lines are Open* by Mullu Lumbreras, which took the form of a remixed Tokyo underground map (see Lumbreras 2013). In this image stations are augmented with social media icons and further images from the competition, creating a dense and hectic diagram of connections and potential journeys. Like the underground map it references, the EDCMOOC is envisioned as a site of complex mobility necessitated by the movements and activities of a concentrated population. Notable are the frequent ‘You are here’ signs, suggesting multiple and distributed positions of engagement and interaction, and perhaps a lack of bearings or direction. Significant to this discussion is a prominent stick figure in the bottom right of the image, which might be interpreted as adopting an exasperated posture and expression. As in the metaphors of the ocean discussed previously, the sense of chaos and confusion brought about by the movements of the MOOC are positioned as an external non-human force, outside of the helpless and vulnerable learning subject.

Anxiety about the orientation of the individual was also a key theme of *Rabbit-hole* by June.B (2013), which depicts a humanoid avatar appearing to float amongst a complex space of symbols and abstract forms. The figure of the human is central in this image, yet its balance and poise appear to be at stake within a fluid and shifting environment peppered with social media icons. The loss of control and direction is palpable in *Rabbit-hole*, and the stance of the avatar is mirrored by an image from *Alice’s Adventures in Wonderland* by Lewis Carroll (2008), a tale of surreal adventures and confusing spaces.

The image provides a useful way of considering how the MOOC environment can disorientate learners who may be expecting the orderly setting of the classroom or lecture hall. Both *All Lines are Open* and *Rabbit-hole* offer intriguing ways to conceptualise the MOOC experience: as the movement of people and the managing of crowds or as an immense, perplexing and unnavigable terrain. In these configurations, the position and status of the individual appears to be at risk. Nevertheless, *Rabbit-hole* offers an alternative reading of what happens when the perception of educational space is disrupted: the individual is conceived, not as the exasperated onlooker, but as reconstituted within the digital; as part of the fluid and shifting spatial order.

Solutions to the massive

Proposed solutions to the massive of the EDCMOOC tended to reflect the tensions between instructionist and constructivist (or connectivist) pedagogy, and assumptions about the xMOOC and cMOOC formats, respectively. As Stewart (2013) aptly pointed out, this dualistic tension is entangled with the dominant ways that

technology is perceived in education: as a means to access information or afford communication. The former interprets the role of education technology as providing more accessible and egalitarian ways for students to come into contact with already existing knowledge, while the latter emphasises the means for interaction and the construction of knowledge through dialogue. Both these views perceive technology in instrumentalist terms, as the neutral and invisible means to achieving educational goals (Friesen & Hamilton, 2010). Furthermore, they directly influence the way that the massiveness of the MOOC is perceived: either as the scaled broadcast of an identical lecture to a large audience or as the potential for more communication and social interaction with a larger group of peers. In these ways, established ideas about pedagogy and technology are reinforcing a dualistic interpretation of MOOCs; as either the efficient transmission of authentic academic knowledge or the building of networked communities that challenge established institutional organisations. As suggested below, solutions to MOOC pedagogy informed by both positions tended to propose practices that actually reduced the massiveness of the EDCMOOC.

Of those comments which appeared to be critical of distributed course space and massive participant activity, a significant proportion specified a solution that involved the reduction of students, the diminishing of content, and the re-assertion of teacher authority. A particularly salient contribution to the forums sums this up with, “I am searching for some simplicity. Week One: Topic One: One Video, One Reading, One quiz, One discussion thread on Week One Topics.” Here, the distributed arrangements of the course are considered to create unnecessary complexity, and reveal the strong desire for a centralised, logical, and linear pathway through the course material. This suggestion exemplifies the call for a singular, and hence scalable, educational experience. This call for simplicity is not just about individual preference; rather it is expressing the idea of education as a set of activities that can be replicated so that each student gains an identical experience. In this way, the move to reduce course content and activity can also be perceived as a move to standardise and abstract learning outcomes. Rather than being the emergent product of specific, concrete, and temporal interaction with the course, learning outcomes and student experience become predefined, identical, and universal. General critiques of standardisation in education are often expressed in terms of resistance to nationally imposed measures; as standards which stifle individual teaching strengths (e.g., Giroux, 2010). Given the international scope of MOOCs, continued research may need to explore the extent to which massive enrolments might reduce the diversity of instruction in particular disciplines.

Calls for direction and guidance were also frequent. The very first student-created forum thread was titled “Where are the professors?” in which the participant suggested:

Somehow I feel like doing this all on my own without any assistance or guidance from professors and being really “in” the course ... I think I could do this any time on my own, but where is the guideline, where is my teacher?

Significantly, this student claimed to be capable of independent study, yet he/she still appeared to covet some level of support, lest his/her position within the course were placed in doubt. Teacher presence was further privileged in the comment, “I would really suggest this course should include some teaching next time. The only reason I came to this course ... is because I was looking forward to learning from the great teachers at Edinburgh!” Another commenter re-asserted the authority of the MOOC

teacher suggesting, “I would far prefer to hear from you instructors who are in a much better position to expose me to current digital culture.” The desire for instruction thus reflects the calls for simplicity and reduction, in which the singular presence of the tutor replaces and conceals the cacophony of distributed peer interaction. The figure of the instructor or professor is thus often considered indispensable, calling into question MOOC designs that too quickly assume the teacher to be merely “a fellow node” in the network (Anderson & Dron, 2011, p. 90), or even a role that is increasingly obsolete (Kop & Hill, 2008).

However, in contrast to such sentiments, many participants expressed a resistance to the authority of the teacher. Another commenter in this thread contended, “Who needs professors? The majority of the students in this course are capable enough to guide participants through the course. We call this social constructivism.” However, significantly, those endorsing this position often appeared to replace the need for a teacher with the necessity for community. This idea of community feedback as a direct substitute for the instructor was expressed by one forum contributor as, “although a MOOC is massive if the people have an understanding that the culture of community is important then you will not have the sense that people are waiting in the classroom with their hands up.” What is significant here is the importance granted to the individual, as part of the ethos of community. The anxiety of the individual not being answered is perceived as the fundamental problem, for which the community provides the service of feedback. Further participants contributed to the naturalisation of community as an essential requirement for learning, expressed by one participant as follows:

People will connect to a community and learn but there has to be a community ... you should strongly think of breaking MOOCs up into smaller learning communities where people can know each other ... I think maybe 24 to 36 people in each “tribe” would be good.

Another forum participant related this directly to educational theory, suggesting “the ‘massiveness’ is real obstacle to interaction and constructivism practices,” making a firm distinction between massive participation and the structured relationships of dialogue required for producing knowledge in the constructivist paradigm.

One of the most prominent suggestions in the EDCMOOC was thus, perhaps unsurprisingly, for the grouping of students. In a thread entitled “Lost in forums” one participant asked, “Don’t we need to be marshalled into moderate size groups, otherwise the number of inputs is overwhelming?” Another commenter suggested, “I am really enjoying this course, but I think that it is important to acknowledge that it is better to have a reduced size classroom than a MASSIVE one.” Many participants made use of the distributed social media spaces to draft guides and strategies for group formation, and these were particularly prevalent in the Facebook and Google+ spaces. One such compendium suggested, “provide a place for cadres to form,” and “engage more tech savvy folks to lead cadres” (Anonymous, 2013). The tactical premise is striking here, with the activist language reflecting the self-organising premise of the connectivist MOOCs (McAuley et al., 2010). Of significance is the systematising of the community here, in which fringe participants are trained by more authoritative figures. This serves as a salient example of the different ways community participation can be interpreted; in this case, alluding to normalisation and hegemony (Ferreday & Hodgson, 2008; Gulati, 2008). Many students formed small groups, some adopting “quadblogging” activities in which

posting and commenting duties were shared amongst four participants, while others contributed to the course alongside work colleagues (e.g., Dale, 2013; Young, 2013). Nationality and language provided strong motivators for creating sub-groups, with approximately 25 location-based groups identified from Coursera forum posts and Facebook activity. Such group formation was often accompanied with the justification that community can only function with an optimal size. As one commenter put it, “drop the M and just call them RSOOCS (reasonably sized ...).”

Conclusions

Reactions and solutions to the massive of the EDCMOOC revealed a profusion of suggestions, expectations, and convictions about MOOC education. The selective examples in this article expose only a fraction of the meta-commentary about this emerging educational format, an intensity of debate that is itself significant given the relatively early stages of the MOOC. Firstly, many students responded to massive participation in ways that can be interpreted as overload, anxiety, and a sense of loss. The massiveness of the MOOC appeared to be something alien to their expectations and understandings of educational activity and practice. Secondly, these responses habitually reinforced an emerging opposition in MOOCs: that between an instructionist form which privileges transmissive pedagogy and centralised, institutionally authenticated knowledge and a constructivist or connectivist form which emphasises the production of knowledge through community interaction or network formation. These oppositional strands are reinforced by the popular designations xMOOC and cMOOC and underpinned by instrumentalist views of technology either as enabling access to information or increasing opportunities for communication. The significant number of professional educators participating in the EDCMOOC raises the question of whether such a bifurcation is a matter of student expectation or the influence of educational theory and teacher conviction. Nevertheless, more work is needed within the open educational movement to consider how to work with a global audience that has significantly different experiences and beliefs about education; deep-seated expectations which are often brought to bear on ensuing MOOC activity (Ross et al., 2014).

This article suggests that the instructionist, constructivist, and connectivist positions tend to adopt practices which work to reduce or immunise what may be the one characteristic of the MOOC that is genuinely new to education: massive participation. This conclusion is not to claim that the EDCMOOC design should serve as a model for subsequent MOOCs or to imply that the massiveness it generated is universally and unquestionably of value to education, but merely to suggest that its novelty offers an alternative way to think about this emerging domain. Both the scaling of a singular educational experience to thousands of participants and the formation of community groups and personal learning networks are of pedagogical worth; yet, they share an interest in structuring and rationalising the diversities and inconsistencies of massive and globalised activity. The importance of this conclusion is that the very development or “maturing of the MOOC” (Haggard, 2013) may rush past this very moment in which something unprecedented and radical might be perceived. SPOCs, or small and private online courses, have been described as an “almost inevitable evolution” of the MOOC (Coughlan, 2013), while the COOC has been suggested to “replace the Massive with the Community” (Shukie, 2013). Obsessions with acronyms aside, these projects demonstrate immunisation at work.

Both these proposals position the community as a way of isolating educational activity from an external world imbued with threats and liabilities. It is an attempt to position education as a transcendent, sterilised activity disconnected from the contaminations and disputes of the populace.

In order to further explore the massive of the MOOC, educational theory might engage with work that considers the increasingly connected and globalised population. Hardt and Negri's (2004) concept of the "multitude" provides a theory of a complex and irreducible population, which achieves commonality through difference rather than similarity. Where "the people" have been used to suggest a single identity and "the masses" used to imply uniformity, Hardt and Negri proposed the "multitude" as way of theorising plurality:

The multitude is composed of innumerable internal differences that can never be reduced to a unity or a single identity – different cultures, races, ethnicities, genders and sexual orientations; different forms of labor; different ways of living; different views of the world; and different desires. (p. xiv)

This acknowledgement of irreducible difference may be valuable for educational projects that seek global participation and massive enrolment numbers. Considering "students" to be a stable and universal category with innate abilities and behaviours masks the variations, clashes, and conflicts that make MOOC populations rich, diverse, and intense. While emerging research is attempting to categorise student involvement (e.g., Ho et al., 2014; Milligan, Littlejohn, & Margaryan, 2013), this may serve to standardise participation rather than engage with the complexities of diverse and context-dependent course interactions.

Whether in the form of the scaled, identical educational broadcast or the construction of an orderly, self-centred personal learning network, MOOCs are frequently designed to rationalise and regulate massive participation into the recognisable guise of the university lecture or the cohesive community. It is in this way that both xMOOC and cMOOC approaches maintain educational orthodoxies by preserving individualism, reason, and autonomy, and excising animality, irrationality, and the *other* (Lewis & Kahn, 2010). The massive of the EDCMOOC may have offered a glimpse of this excess; a radical outside to education beyond the rational common sense of individualism and self-interest. As education begins to sense global participation, what may be truly revolutionary and disruptive lies not in what the MOOC can do for the progress and betterment of the individual, but rather what the massive can do for education. As Lane and Kinser (2012) suggested, a "multinational university can't simply be a broadcasting service to recipients in other countries; it must engage with and learn from other cultures." One way to learn from the massiveness of the MOOC might be to conceive of education beyond the exclusive interest in individual attainment, and to work with the massive rather than against it.

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The Global Institution, the Homely, and the Overwhelming: (per)forming three MOOC spaces.

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Abstract

While being a relatively recent phenomenon in higher education, the Massive Open Online Course (MOOC) has attracted significant media attention for offering free participation and attracting unprecedented enrolment numbers, often in the tens of thousands. Coursera, and edX have emerged as the principle MOOC platform providers, entering into partnerships with a significant number of higher education institutions, mostly located in the US, and promoting themselves as global organisations that disrupt geographical barriers to higher education. MOOCs are often marketed in terms of accessibility and egalitarianism by providing unproblematic admittance to university education. However, the space of the MOOC is significantly under-theorised, and like much of education in general it is often 'left unexamined as simply a different context, container or backcloth for curriculum and pedagogy' (Fenwick *et al.* 2011, p220). This paper draws from spatial theory and the mobilities turn to consider what kinds of spaces are being (per)formed in the emerging domains of the MOOC. It will describe three different enactments of space: the 'global institution'; the 'homely'; and the 'overwhelming', involving from the promotion of particular MOOC platforms and the activities of two specific courses. The paper will draw upon visual, discursive and technological elements in these examples to consider how notions of space can be articulated and enacted through promotion, participation and digital intervention. 'Global-institutional' space concerns the ways that MOOC platforms advance an arrangement that maintains the traditional structure of the institution alongside claiming a global reach. 'Homely' space involves promotion of a local community building as the locus of course activity during a specific MOOC, privileging a central and authentic site of scholarly occupation. 'Overwhelming' space concerns participant responses to an unconventional MOOC utilising distributed social media spaces and encouraging student-created content. Student responses from this course will be used to enact the space of the MOOC, not as the passive scenery external to educational activity, but rather as an active and relational process which emerges within; through relations with the subjects, activities, technologies and objects of online education.

Keywords

MOOC, spatiality, mobilities, sociomaterial.

Introduction

While being a relatively recent phenomenon in higher education, the Massive Open Online Course (MOOC) has attracted significant media attention for offering free participation and attracting unprecedented enrolment numbers, often in the tens of thousands. The principle MOOC platform providers have entered into partnerships with a significant number of higher education institutions, mostly located in the US, and promote themselves as global organisations that disrupt geographical barriers to higher education. MOOCs are often marketed in terms of accessibility and egalitarianism by providing unproblematic admittance to university education. However, the space of the MOOC is significantly under-theorised, and like much of education in general it is often 'left unexamined as simply a different context, container or backcloth for curriculum and pedagogy' (Fenwick *et al.* 2011, p220). This paper draws from spatial theory in education (Leander *et al.* 2010, Fenwick *et al.* 2011) and the notion of the mobilities turn (Sheller & Urry 2006, Edwards *et al.* 2011) to consider what kinds of spaces are being (per)formed in the emerging domains of the MOOC. It will describe three different perceptions of space: the 'global institution'; the 'homely'; and the 'overwhelming', deriving from the promotion of particular MOOC platforms and the activities of two specific courses. The paper will trace visual, discursive and technological elements of the MOOC in order to consider how these spaces are being articulated and enacted through promotion, participation and digital intervention. Thus the space of the MOOC will be considered as an active

and relational process (Fenwick *et al.* 2011) which emerges through the ‘intra-action’ (Barad 2007) of the subjects, activities, technologies and objects of online education. This process of relational transformation allows the MOOC to be theorised as a space of mobility rather than stagnation, in which space is continually remade.

This research experiments with the possibilities of post-qualitative (Lather 2013, MacLure 2013, St.Pierre 2013) and Deleuzian-informed (Coleman and Ringrose 2013) methodologies, as well as sociomaterial approaches (Fenwick *et al.* 2011), in order to *perform* the spatial enactments that follow. Data was collected through participant observation in numerous MOOCs, and analysed through diffractive readings (Barad 2007, Hultman & Lenz Taguchi 2010), and the ‘plugging in’ of data and theory (Jackson & Mazzei 2013), to experiment with non-interpretivist and non-representational research. It is not a methodology which claims to describe the world of the MOOC, but to involve itself in the creation of new and different spatial concepts; to interrupt and transform the dominant arrangements of space in this emerging and influential educational format.

Global-Institutional Space

Coursera, edX and Udacity have emerged as the principle MOOC platform providers, promoting themselves as global organisations that disrupt geographical barriers to higher education. In doing so, the space of the MOOC is portrayed in a curiously two-fold manner: the elite institution and the global classroom.

Slogans on the Coursera and edX homepages advise ‘Take the world’s best courses, online, for free’ and ‘Take great courses from the world’s best universities’, respectively, promoting MOOCs as both global and yet exclusive, far-reaching but nonetheless select. It is these two facets which have dominated the extensive media coverage, habitually emphasising vast enrolment numbers, alongside partnership with prestigious US universities (for example Adams 2012, Lewin 2012, Marginson 2012, Pérez-Peña 2012). The MOOC platforms themselves also emphasise class sizes. The Coursera homepage prominently displays a dynamically updating figure for total signups, or ‘Courserians’, with the figure at the time of writing close to 5 million. Scaled participation also appears to be at the heart of the edX promotional material; president Anant Agarwal introduces edX by asking viewers to ‘imagine taking a class with a hundred thousand or more students’ (edX 2013), while two further videos state that edX’s goal is to enrol a billion students from around the world (2012a, 2012b).

Alongside these international ambitions, there are clear attempts to preserve a particular kind of institutional space as a core feature of participation at scale. Images of prestigious campus real estate form the primary visual content on pages dedicated to partner institutions. Traditional buildings feature prominently on the Coursera pages for Ivy League institutions such as Princeton University and The University of Pennsylvania, as do conventional study spaces, such as the oak panelled library displayed on the Harvard edX page. Thus the historicity of the elite institution, and the time-honoured spaces of scholarly study, are being utilised here to legitimise the MOOC, to provide a spatial grounding from which a sense of authenticity can be achieved. Where the digital is often perceived to be troublesome, unconventional and to undermine the established routines of education, the sedentary space of the campus provides stability and recognition.

This highlights the puzzling kind of space that MOOC platforms seem to promote. The experience of engaging with a university for the vast majority of global participants is not going to involve leafy quadrangles, grand façades, or the social interactions of campus study, yet these are the kind of spaces at the forefront of MOOC promotion. The very elitism that these MOOC organisations claim to overturn seems to form the basis of their wish to appear as genuine educational providers. The prestigious campus, while being rejected on the grounds of inequality, is reinserted here as a potent symbol of authenticity.

This two-fold space of the MOOC is exemplified in a recent visualisation created by Coursera, which depicts a spinning globe, peppered with markers indicating its partner institutions, and displaying nation states in a hue according to the number of students enrolled (see figure 1).

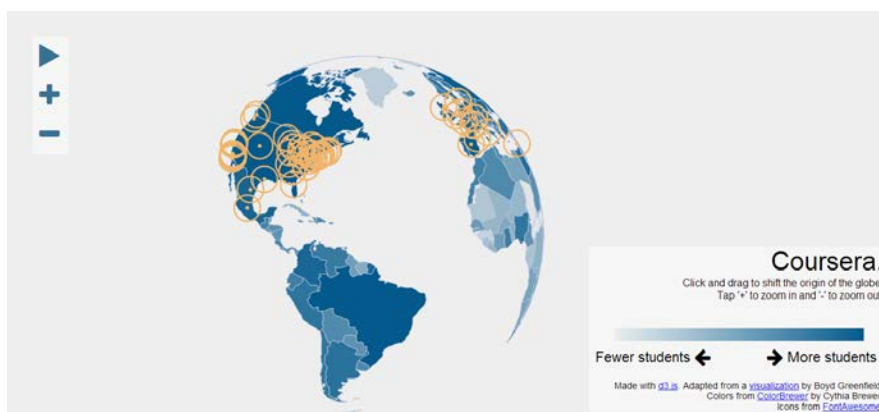


Figure 1: Coursera visualisation depicting the location of institutions and colouring nation states according to student enrolment numbers. <http://viz.coursera.org/2013-02-20-globe/>

This visualisation is interesting on a number of levels. Despite the global emphasis, the vast majority of partner universities are clearly located in the US, with a burgeoning number in Western Europe (see figure 1). It also embodies the broader trends of ‘Big Data’ and ‘Data Visualisation’ as ways of presenting and displaying large scale social phenomena. It is through such methods that Coursera and edX propose to provide new insights about the learning process by collecting vast amounts of data derived from MOOC activity. However, in this visualisation participant data is being used as a promotional tool; to create a spatial representation that serves to publicise Coursera’s claims of global influence.

However, rather than this data ‘speaking for itself’¹, in other words representing with perfect fidelity a ‘real’ space out there, it has been collected, structured and displayed in order to create a particular kind of spatial arrangement. MOOC participants are represented, not through their individual global location, but through an affiliation to a nation state. Thus Coursera’s educational relationship with its various worldly participants manifests as the colonisation of territories; it is thus not individual participants that are represented, but entire countries. Furthermore, this arrangement also portrays a global space in which populations are homogenised and distinction between nation states is simply a matter of how many people are signed up.

This visualisation is an example of the instrumental approach to technology that MOOC providers appear to endorse. Indeed, it is technology which is positioned as the means to coalesce the seemingly inconsistent spaces of the elite university campus and the distributed global classroom. Coursera, edX and Udacity position web-streamed video as the technology able to perform this spatial expansion, allowing the institution to extend its presence beyond the confines of the campus walls in the form of recorded lectures – the primary educational content in most MOOCs. Crucially, the video lecture, perceived as an indisputable record of an authentic university event, leaves the institution intact in this process. Whatever is extended is also preserved, and the authenticity, rigour, and historical legitimacy of the institution is maintained in the global reach.

Homely Space

A salient example of the use of video can be found in the ‘Modern and Contemporary American Poetry’ (known as ModPo) course from the University of Pennsylvania in partnership with Coursera. As part of the introductory material, this course provided a video tour of the Kelly Writers House, a campus building associated with the instructors of the ModPo MOOC and creative writing students at the University of Pennsylvania.

As a production of space, this video offers a remarkable enactment of the domestication of the MOOC, involving, I suggest, the production of familiarity and the practice of mapping. Rather than the imposing campus edifices foregrounded by the MOOC platforms, this faculty-level promotion aims at establishing a space of intimacy and community by providing a tour of the building which hosts the ModPo course. Course convenor Al Filreis hosts the tour, providing commentary as he is filmed proceeding through various rooms within the building, in which he interviews each of the ModPo Teaching Assistants (TAs) in turn. Of primary emphasis in this video is the promotion of a community at the Kelly Writers House. Being interviewed, ModPo

¹ Reference to Chris Anderson’s wired article ‘The End of Theory: The Data Deluge Makes the Scientific Method Obsolete’ (2008), in which he states: ‘With enough data, the numbers speak for themselves’.

TA Dave stresses the accessibility and hospitality of the space, declaring ‘it’s been great to have a place that’s so welcoming to anybody. There is no requirements, you know, you don’t have to be a grad student or undergrad, or involved in the school, you can be anybody in the community, and it’s just been a great welcoming place’ (ModPo 2012). Photo albums and wall displays also feature prominently, exhibiting various social events and the abundance of visitors to the building (see figure 2). In the final scene, Filreis addresses the camera and invites viewers to visit: ‘I hope and I seriously ask you to come when you are in Philadelphia or nearby, stop in at the writers house, you don’t need to announce yourself, just walk in the front door...just come and enjoy yourself’ (ModPo 2012). The space of the ModPo MOOC is being framed here as open, but firmly located somewhere. It attempts to maintain an intimate and convivial approach, positioned within the Kelly Writers House as the authentic site of community.



Figure 2: Still from the Kelly Writers House Tour Video showing photographs of community members and visitors

Participant responses to the video tour in the course forum often subscribed to this formulation of intimate homely space. One respondent endorses the video: ‘Thank you - for the tour and for making ModPo, as well as the Kelly House, a place that is, as Dave put it in this video, so welcoming to anybody!’. Another participant concurs with the community focus, suggesting ‘I felt like an honored guest being invited into the home of ModPo with all of the “family” there to greet me’. These sentiments resonate with the findings of Bayne *et al.*, in which distance students associate themselves strongly with their programme of study and its community, rather than with the institution (2013). However, a further forum participant alludes to the potency of the university space portrayed in the video, responding ‘I really want to visit ... It would be fun and I might absorb some of that Ivy League brain power!!’. The physical campus space of the elite university is considered here to have exceptional qualities with regards to learning, qualities that, despite the specified aims of the course, are not perceived to transfer into the online spaces of the MOOC. The majority of respondents appeared to perceive the video tour as providing unrestricted and authentic access to the central and legitimate space of the course. Another respondent attests, ‘The tour of this house made me realize why the tone of your Mod Po videos seem so genuine. Kelly Writers House is a welcoming place full of genuine faces where the individuals are recognised...’. The ocularcentricism of the video medium is highlighted here, assumed to facilitate direct admittance to the space and to convey the authenticity of the people involved. The framing of human bodies and the emphasis on eye contact are key aspects to the ways this space is being constructed. It is the medium of video itself that provides this sense of ‘reality’, not only depicting genuine space and the validity of site through sight, but facilitating its transference to a distributed audience of global participation.

The effectiveness of this homely narrative is suggested by the presence of a single comment that challenges the dominant sentiment: ‘I suspect I won’t win a popularity contest for this ... I know Kelly House, like this course is open to everyone, but I did think of “I, Too” by Langston Hughes after I finished the tour’. The work to which this comment refers is a poem about social injustice in America, featuring a man who is excluded from eating in company on the grounds of his race. The commenter appears to be expressing notions of inequality here, where the video serves to indicate the marginalisation of MOOC participants from the authentic local community. The video tour can thus be perceived, not as providing access to the genuine nucleus of the course,

but merely serving to indicate what will always remain exclusive, inaccessible and unaffordable² to the majority of ModPo participants.

In conjunction with ideas about intimacy and inequality, the video tour can be perceived as enacting a particular kind of space in response to the digital. The act of guiding the audience through the Kelly Writers House manifests as a mapping of the course space. The physically located, sequential and linear navigation is offered as a means through which the ModPo participants can understand, and delimit, the site in which educational activity is to be grounded. The course convenor literally marks the boundaries of the space by walking through the building, mapping the frontiers of the Kelly Writers House and simultaneously signalling what is inauthentic and illegitimate course space. The student responses to this mapping show how the campus remains 'symbolically and materially significant' (Bayne *et al.* 2013). We can understand this domesticating performance as an act of taming the digital, or providing 'moorings' (Hannam *et al.* 2006, Edwards *et al.* 2011) in the sometimes unfamiliar and shifting spaces of the web.

Overwhelming Space

In contrast to formality and order, more decentralised, chaotic and unsettling MOOC spaces are to be found. 'E-learning and Digital Cultures' (known as EDCMOOC), a MOOC from the University of Edinburgh in partnership with Coursera, is one example of a course which produced distributed and mutable spatial orderings. Contrary to typical MOOC design, this course did not feature video lectures as the primary content, offering instead a range of public domain short films and animations alongside openly accessible academic readings. This approach was intended to invite EDCMOOC participants to explore, interpret and discuss this material in the Coursera forum, as well as in personal blogs and a range of other social media (Knox 2013, Knox *et al.* 2012). This arrangement - a combination of distributed course environments and student-created content, involving of thousands of blog posts and tweets - created a space that was interpreted by many participants as immense, chaotic and uncontrollable. This final section will focus on student responses to this overwhelming MOOC space.

Many of these reactions were expressed within the forum pages of the Coursera platform, which was inundated with thousands of posts and comments in the first few days of the course. One participant refers to the distributed spaces of the course, describing 'multiple discussion threads via several communication platforms....a lot of work in one week. I am overwhelmed. I am searching for some simplicity'. The simultaneity of different course spaces is suggested here to be an unwelcome complexity, premised on the ways that these different environments present course information and student discussion. A number of respondents began to express similar sentiments with the use of spatial metaphors, frequently attempting to evoke notions of volume and expanse. One contributor states: 'The course feels like an ocean so I'm making myself post this comment as a way of dipping one toe into the water...', while another commenter suggests that they are 'overwhelmed about how I find my niche and voice in this huge ocean of information'. Another contributor suggests 'we're all like we're wandering around a big airport picking up bits and pieces'. What is striking about these spatial ideas is how they express an anxiety about how to orient oneself to, and interact with, vast and unfamiliar spaces. We might interpret the ocean and the airport as spaces that are not arranged around the individual; rather, they accommodate the swarm and the crowd. These ideas of unbounded and engulfing space also emerged in visual work created during an image competition, held during week 3 of the EDCMOOC course. A prominent example is an image entitled 'Rabbithole' by participant june.B, which features a humanoid avatar seemingly afloat in an abstract space awash with social media icons, and clearly referencing the surreal adventures of Alice in Wonderland by Lewis Carroll (see figure 3).

² At the time of writing, total tuition fees for undergraduate students at the University of Pennsylvania are \$45,890: <http://www.sfs.upenn.edu/paying/fees.htm>



Figure 3: 'Rabbithole' by June B depicting a humanoid avatar floating in abstract and symbolic space.
<http://www.flickr.com/photos/78233395@N02/8480022492/>

This image provides a useful way of considering how complex digital spaces can disorientate learners who may be expecting the recognisable backdrops of the orderly classroom or the convivial learning community. Space is then conceived as exploratory; performed in relation with the symbolic, the perceptual, the corporeal, and technological (Fenwick *et al.* 2011).

Lacking a recognisable structure or systematic guidelines, engaging with the EDCMOOC Coursera forum itself became a focus for the concerns of the overwhelmed, described by more than one contributor as 'navigating the maze'. This idea of disorientating space is reflected in a number of comments about discussion contributions being, as one participant states, 'lost in the deluge of forum responses'. Another commenter suggests: 'I feel if I make a post it is like shouting out in a crowded railway station trying to make myself heard above 40,000 others', while a further participant describes 'being swallowed by immensity'. This reaction to the scale, complexity, and unfamiliarity was also reflected in visual responses. Countering the comfort and intimacy of homely space, an image entitled 'Always On' by Angela Towndrow portrays a house in ruins, overgrown with plants, and including the caption, 'Yes, she's home, she's just a bit busy with the edcMOOC' (see figure 4).



Figure 4: ‘Always On’ by Angela Towndrow, depicting a derelict house overgrown with plants.
<http://www.flickr.com/photos/90243669@N05/8461301620/sizes/l/in/photostream/>

Here the ordered structure of the home becomes a site of disorder, as undomesticated, wild non-human forms deterritorialise the structure. As implied by the caption, the neatness of the home requires maintenance, lest outside forces begin to enter into relations that alter the organised spatial arrangements. This interpretation thus becomes a useful starting point to begin to perceive how the diverse spaces of the web begin to intermingle and transform the orderly and established places of education in the MOOC. As revealed by the neglected house, we can consider MOOC space, not as the conservation of a rigid archetypal form, but a practice of digital hybridity; a spatial arrangement that is not static, but comprised of movement through relational transformation.

I have performed the space of the EDCMOOC here as a shifting arrangement, which, rather than attempting to maintain the established spatial orderings of the campus or the classroom, permits the emergence of fluid and hybrid arrangements, distributed across the web and ordered through irreducible amalgamations of humans, technologies, discourses and codes. In contrast to the idea of space as a passive container in which learning takes place, this suggests an active production of space, enfolded in the practices of education, and performed through co-constitutive relationships between the human and the non-human.

Conclusions

The three enactments of space in this paper have illustrated how space in the emerging domain of the MOOC is neither singular nor definitive. It is continually performed through entangled ideas, hybrid practices, and interwoven technologies. MOOC platform providers attempt to create a space that preserves the grandeur and authenticity of the educational institution, yet also traverses the planet. It is a space maintained through symbolic references to campus real estate and statistical constructions of global influence. The two-fold space of the elite institution and the global classroom appears conflicted, and the spatial arrangements in which the vast majority of students will engage remain unrepresented and under-theorised. Individual courses often work to construct intimate spaces that attempt to reassert the physical proximity and co-presence of a learning community. As we have seen in the ModPo MOOC, this leads to a privileging of centralised and exclusive space over that which might be dispersed, partial and irregular. Participant reactions to the unconventional and distributed spaces of the EDCMOOC revealed notable feelings of confusion and disorientation, suggesting that many students engage in MOOCs with entrenched understandings and prior expectations about the spatial arrangements of education (Ross *et al.* in press). However the irregular arrangements of the EDCMOOC influenced a number of responses that envisioned space in new ways, providing opportunities for educators to consider MOOC offerings according to different orderings; gatherings that acknowledge the fluidity and hybridity of the digital in ways that counter the dominant rhetoric of the instrumental use of technology. This offers a concept of the MOOC, not as the historic place of the university, but as an emerging space of difference. Different, not only from the campus spaces it often tries to emulate, but also different from itself. In other words, an active and shifting process in which educational space is continually produced in hybrid configurations.

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Active Algorithms: Sociomaterial Spaces in the E-learning and Digital Cultures MOOC

Algoritmos Activos: Espacios Sociomateriales en los E-learning y en las Culturas
digitales Mooc

ABSTRACT

This paper will explore two examples from the design, structure and implementation of the 'E-learning and Digital Cultures' Massive Open Online Course (MOOC) from the University of Edinburgh in partnership with Coursera. This five week long course (known as the EDCMOOC) was delivered twice in 2013, and is considered an atypical MOOC in its utilisation of both the Coursera platform and a range of social media and open access materials. The combination of distributed and aggregated structure will be highlighted, examining the arrangement of course material on the Coursera platform and student responses in social media. This paper will suggest that a dominant instrumentalist view of technology limits considerations of these systems to merely enabling or inhibiting educational aims. The subsequent discussion will suggest that sociomaterial theory offers a valuable framework for considering how educational spaces are produced through relational practices between humans and non-humans. An analysis of You Tube and a bespoke blog aggregator will show how the algorithmic properties of these systems perform functions that cannot be reduced to the intentionality of either the teachers using these systems, or the authors who create the software, thus constituting a complex sociomaterial educational enactment.

KEYWORDS

MOOC, Sociomaterial, Instrumentalism, Essentialism, Determinism, Blog aggregation, You Tube, Space.

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1. Introduction

The Massive Open Online Course (MOOC) has emerged as one of the most prominent themes in recent discussions of education and technology. Media accounts have stressed the disruptive potential of MOOC initiatives, often foregrounding the large enrolment numbers acquired in early offerings (see Adams 2012, Lewin 2012, Marginson 2012, Pappano 2012, Pérez-Peña 2012), while more formal reports have emphasised the threat to existing business models and pedagogical practices in higher education (BIS 2013, Inside Higher Ed. 2013, Universities UK 2013). Motivated by reports of low retention rates (Parr 2013, Kolowich 2013, Rivard 2013, Jordan no date), emerging research has focussed on the identification of MOOC learners and the categorisation of student behaviour (Christensen et al. 2013, Breslow et al. 2013, Milligan et al. 2013, Perna et al. 2013, Ho et al. 2014).

Less attention has been given to the specific technologies involved in MOOCs, and the ways they might shape the kind of education that takes place. The prominence of the three major MOOC organisations, Coursera, edX and Udacity, and their partnerships and affiliations with elite universities, positions the MOOC as an important site for considering the influence of networked and digital technologies on higher education. Understanding the particular arrangements of resources, services and activities in the MOOC is thus a crucial part of the discussion around centralised, distributed and aggregated models of educational provision in an increasingly digitised sector. The rapid rise of the MOOC demonstrates that education is not exempt from the wider infiltration of code into all aspects of social life (Dodge et al. 2006, Manovich 2013). This paper therefore seeks to explore the implications of the algorithmic processes that are entering mainstream education through MOOC arrangements.

This paper will analyse specific technologies from 'E-learning and Digital Cultures' (known as the EDC-MOOC); a MOOC from the University of Edinburgh in Partnership with Coursera, with the aim of unravelling some of the relationships between the different spaces of the course. While debates around the use of e-learning technologies are often infused with assumptions about their neutrality or bias in the learning process (Kanuka 2008), this examination will draw upon sociomaterial theory (Fenwick et al. 2011) to challenge prevailing determinist positions and consider the entanglements of technology and educational purpose in the MOOC. Rather than assuming the necessary or innate value of centralised or distributed arrangements, this perspective will suggest the need for more nuanced analyses that acknowledge the relational processes through which educational spaces are produced. During the first instance of the course, the EDCMOOC was suggested to be a hybrid of the 'cMOOC' and 'xMOOC' varieties (Rodríguez 2013) that tried 'very hard to subvert its own conditions of production' (Stewart 2013a). It therefore serves as a useful example to consider the different kinds of technologies employed in MOOCs, as well as the spatial arrangements they are often considered to entail. Rather than looking at the EDCMOOC as comprising of inherently centralised or distributed space, this paper will suggest that such arrangements are produced from relations between human and non-human activity.

2. E-learning and Digital Cultures

The EDCMOOC was a five week course on the themes of digital technology, education and popular culture offered in January and November 2013 using the Coursera MOOC platform. The course was divided into two sections: notions of utopia and dystopia in relation to technology; and ideas about being human associated with technological change. The first instance of the course attracted 42,844 enrollees, of which 21,862 were registered as active (MOOCs@Edinburgh Group 2013). The EDCMOOC was designed to foreground student discussion. Rather than producing the kind of video lectures that are standard in the 'xMOOC' model (Rodríguez 2013), the course used a range of public domain videos, short films and animations, combined with a selection of openly accessible papers and articles. This curated material was made available within the pages of the Coursera course, and intended to prompt written responses from students in the form of discussion posts or blogs. Google Hangout live videos were also broadcast by the teaching team at specific times during the course, for the purposes of summing up themes and activities, as well as allowing participants to pose questions

and comments. EDCMOOC students were invited to submit a final assignment in the form of a 'digital artefact' that represented any aspect of the course. It was suggested that this work took the form of a web page, image, or video resource, and was required to be made publically available on the web for the purposes of peer assessment, as well as to make the work accessible to others. The EDCMOOC made use of the peer assessment functions on the Coursera platform to allow students to share the link to their work, and have it allocated randomly to at least three peer markers.

The EDCMOOC invited and encouraged participants to respond to the teacher-curated materials through dialogue and discussion, both within and outside of the Coursera platform. The Coursera discussion forum in the first EDCMOOC hosted 1,430 separate threads, which contained 8,718 posts and 5,146 comments (author removed for peer review 2014). The number of individual forum posters stands at 2,615, while 1,444 commented on existing posts (author removed for peer review 2014). Participants were also encouraged to use social media channels discuss the course materials, and while the teaching team suggested services such as Facebook and Google Plus in introductory communications with enrolees, these spaces were created and maintained exclusively by course participants. A Facebook group created during the first instance of the EDCMOOC attracted 4,820 participants (author removed for peer review 2014), and became active space for dialogue and resource-sharing outside of the Coursera platform. A similar Google plus group considered of 1,945 members (author removed for peer review 2014). Following the specifying of a course hashtag (#edcmooc), Twitter became a prominent space for EDCMOOC activity. In a period extending beyond the start and end date of the EDCMOOC in order to encompass the anticipation and aftermath, a Twitter analysis revealed 18,745 unique tweets (author removed for peer review 2014). These statistics reveal a considerable interest in engaging with distributed and public social media spaces outside of the Coursera platform, and significant movement between different spaces.

This course design involved the use of a range of functions and services, both within the Coursera platform and outside in the public web. The ensuing analysis of a selection of these technologies will make the case that, rather than simplistic binaries between open and closed, or centralised and distributed educational arrangements, activities in the EDCMOOC performed complex amalgamations of space, constituted by both social and material factors. However, before this can be done, an overview of the dominant perspectives of technology needs to be outlined in order to explain the specific theoretical position which underpins this analysis.

3. Perspectives on Technology

Decisions about the use of e-learning technologies are 'embedded in our philosophical views about both education and technology; underlying these views is our interpretation of the world and our actions within it' (Kanuka 2008, p92). It is therefore crucial to clarify the dominant views of technology in education in order to identify where limitations and possibilities may lie. The prevailing educational view of technology in education is that it has inherent properties, and predefined universal functions which are separated from social conditions and contexts (Sorensen 2009). This intrinsic separation between technology and individual human beings, or society in general, is a notion that has been widely critiqued in other disciplines, such as the philosophy or sociology of technology (Hamilton and Friesen 2013). Hamilton and Friesen suggest that educational research is dominated by instrumentalist or essentialist perspectives, the former viewing technology as the transparent means to accomplishing educational aims, and the latter assuming innate and absolute properties (2013). These determinist perspectives maintain a separation between human beings and technology that posit either as the driving force that regulates and controls the other. Drawing from Dahlberg (2004), Kanuka suggests that educationalists tend to adopt one of three positions: 'uses determinism' involving the view that technology is a transparent tool for the realisation of educational aims (aligning with instrumentalism); 'technological determinism' concerning the effects of technology on individuals and society (aligning with essentialism); and 'social determinism' which perceives societal contexts to drive changes and uses of technology (2008). While 'social determinism' appears to acknowledge broader contingencies (Kanuka 2008), the division between tech-

nology and human beings remains, the former rendered subservient to 'social systems and cultural contexts' (Kanuka 2008, p95).

The most prominent approaches to the MOOC have tended to assume just such determinist positions, aligned closely with the idea that technology either provides increased opportunities for dialogue and connection between individuals, or the means to gain admittance to the esteemed educational content of a prestigious institution (Stewart 2013b). It is this dualist arrangement which underpins the designations 'xMOOC' and 'cMOOC', frequently used to describe what are often considered to be two fundamentally different MOOC models (Rodriguez 2013). The former is suggested to be underpinned by behaviourist pedagogy, while the latter is informed by the proposed theory of connectivism (Rodriguez 2013). I suggest that both behaviourism and connectivism have tended to adopt determinist views: either perceiving technology to influence preferred conduct and suppress undesired behaviour (Kanuka 2008), or to be the invisible means to achieving educational aims (Hamilton and Friesen 2013), in this case the formation of connections with other participants in the form of a Personal Learning Network (Siemens 2010, Kop et al. 2011).

However, a clear position on the role of technology in the MOOC is difficult to find, and the discourse often adopts both instrumentalist and essentialist perspectives. The rhetoric of disruption and innovation accompanying the promotion and advocacy of Coursera, edX and Udacity appears to adhere to the typical behaviourist view of the role of technology; as determining 'effective and efficient learning' that is 'more reliable, accurate, faster, and cost-effective than humans' (Kanuka 2008, p100). It is the video streaming and automated assessment technologies of the MOOC platform that are claimed to drive educational change, and break down barriers to access. As the recent Department for Business Innovations and Skills report in the UK suggests, 'MOOCs herald an unstoppable "Napster moment" which will break the old business model of Higher Education' (BIS 2013, p13), implying essential qualities of disruption. Positive media reports have also been suggested to 'hail MOOCs as the hi-tech engine of a transformative revolution that will remake education as a highly engaging, open and low cost activity' (BIS 2013, p64). Alongside such sentiments are frequent claims of emancipation, with Coursera claiming that its services will 'empower people with education that will improve their lives, the lives of their families, and the communities they live in' (Coursera 2014b), appearing to frame technology in instrumental terms. Multiple deterministic approaches are also detectable in the connectivist approach to MOOCs. For example, while Anderson and Dron suggest that connectivist 'learning is the process of building networks of information, contacts, and resources that are applied to real problems', they also claim that 'technology has played a major role in determining the potential pedagogies that may be employed' (2011, p87). Technology appears to be both a transparent tool for the creation of learning networks, but also a disruptive force that changes educational activity. For Hamilton and Friesen, such claims 'leave us with a paradox – technology is at once an all-powerful determinant and utterly insignificant in the face of human will' (Hamilton and Friesen 2013, p10).

Rather than defaulting to one of the three determinist positions, Dahlberg calls for a non-reductionist methodology which 'recognizes that each so-called determining factor is itself embedded within and constituted by a system of inter-linked constitutive processes' (2004). It is this suggestion of irreducibility that is taken up by sociomaterial theory.

4. Sociomaterial Theory

I suggest that the fundamental difference hailed by sociomaterial theory is a shift away from the identification of determining factors and towards a consideration of what is produced through co-constitutive relations (Fenwick et al. 2011). Rather than beginning with the foundational categories of 'technology', 'society' or the 'user', the most radical sociomaterial approach contends that '[a]ll things – human and non-human, hybrids and parts, knowledge and systems – emerge as effects of connections and activity' (Fenwick et al. 2011, p3 emphasis original). In other words, a clear determinist position is impossible because any object, concept, person or thing is necessarily determined by other relations. More generally, the sociomaterial signals a range of

approaches that foreground the relationships and entanglements between what is considered social and human, and what is thought to be material and non-human.

This paper considers the algorithms, software and infrastructure of the web to act in ways that cannot be reduced to the purpose defined by their human authors or creators, and thus to involve non-human, material characteristics. Rather than simply reflecting human intentions, Scott & Orlikowski claim that code is considered active, generative and performative in shaping online space (2013). This reflects the growing discipline of 'software studies' (Dodge et al. 2006, Manovich 2013), in which protocols and algorithms are considered to have 'the capacity to govern and manage users' (Bucher 2012, p2). Such ideas 'destabilize the widespread account of technology as stable singular tools separate from and under the control of human beings' (Sorensen 2009, p32). However, in suggesting that technology has agency is not to adopt a technological determinist position. A sociomaterial perspective views agency as distributed rather than situated exclusively within human beings. As Latour suggests, 'action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled' (2005, p44). Importantly, this is to recognise that human actions and desires 'emerge through the myriad translations that are negotiated amongst all the networks – movements, talk, materials, emotions and discourses' (Fenwick et al. 2011, p104). The sociomaterial position thus 'refutes anthropomorphic centrality of human beings and human knowledge in defining the world and its relations' (Fenwick et al. 2011, p14-15).

Significant here are spatial theories that lie within the broader sociomaterial arena (Fenwick et al. 2011). Arguing that space is produced through relational practices rather than serving as a background for educational activity (Fenwick et al. 2011), sociomaterial theory provides a useful way of thinking beyond the dominant dualisms of 'closed' and 'open', 'centralised' and 'distributed', prevalent in discussions of digital educational provision. Established education, it has been claimed, is typified by 'spaces of enclosure' (Lankshear et al. 1996, p154). Lankshear et al. suggest that '[t]he book, the classroom and the curriculum can be viewed as intermeshed fixed enclosures which operate in concert to separate educational engagement from wider spheres of social practice' (Lankshear et al. 1996, p154). It is through such closed spaces, and under the direction of the authoritative teacher that students must interpret an external world. For Lankshear et al., these enclosed spaces are part of an educational tradition that privileges singular definitive knowledge (1996). In contrast, digital networks are suggested to open new possibilities for educational practices that challenge the stability of authoritative texts, and to provide the conditions to negotiate rather than discover knowledge (Lankshear et al. 1996). It is such sentiments which have fuelled utopic views of digital networks as spaces of anti-institutional empowerment. As an early report on MOOCs claims, '[w]hile digital technologies have exponentially increased the rate at which knowledge is created and distributed, they have simultaneously reduced the barriers to creating and consuming it' (McAuley et al. 2010, p5).

The following analysis is suggested to signal caution in assuming that open or distributed spaces are inherently more pedagogically valuable, emancipatory, or democratic, than established institutional spaces of enclosure. Following Ryberg et al.'s call for more nuanced considerations of 'web 2.0' technologies in the face of technological determinist hyperbole (2012), I draw upon sociomaterial theory to challenge the simple distinctions between bounded and unrestricted space. Exploring two examples from the EDCMOOC, I will attempt to show that the course did not take place within centralised or distributed space, but rather it was a spatial practice itself. Centralisation and distribution were the effects of particular sets of relations. In this way I suggest that 'there is no inside and outside, but rather a relation set of practices and mobilities' (Fenwick et al. 2011, p152). The spaces of the EDCMOOC can thus be perceived as being produced through practices of boundary making, (im)mobilities and moorings (Edwards et al. 2011), rather than rigid distinctions between closed and open, or centralised and distributed educational space.

5. Analysis

While the Coursera domain name is registered in Ashburn, Virginia in the United States (W3snoop, 2014),

the platform is powered by the Amazon Web Services cloud infrastructure (Saeta 2014). The power and scalability of this cloud-based service is described as essential for the global provision of the organisation, and the rapid rise in users experienced during the first year of launch (Saeta 2014). The recent expansion of partnerships, claimed to be 108 at the time of writing (Coursera 2014a), therefore constitutes a considerable adoption of cloud services by a significant number of elite institutions world-wide. However, despite utilising cloud services, the Coursera platform conforms to a model that resembles existing educational practices (Rodriguez 2013), and the bounded and tightly managed Learning Management System (LMS) or Virtual learning Environments (VLEs), traditionally hosted by the educational institution. The platform is structured around three principal functions: the delivery of video lectures; automated assessment, either in the form of computer-graded multiple choice quizzes or algorithms which allocate assessors for peer-reviewed student work; and the facilitating of dialogue between participants in a threaded discussion forum. These spaces are designed to contain the activities of engaging with course content, being assessed for the purposes of measuring course completion, and communicating and socialising with peers. In this way, the Coursera platform might be considered to emulate established classroom space, an arrangement in which pedagogy is considered to drive the deployment of technology (Cousin 2005).

However, looking beyond the categorisations of cloud computing or learning platform, the following analysis will attempt to show how the space of the EDCMOOC is produced in practice. The resource pages of the course offer a noteworthy example of the complexities engendered by combining platform and social media services. Instead of producing video lectures, the EDCMOOC embedded a range of public domain YouTube videos within the Coursera site (see fig 1 for week one), and combined with open access journal papers and articles, these constituted the primary resources for the MOOC. Utilising material that already 'existed' elsewhere on the open web meant that the Coursera platform pages became a conduit for the movement of participants to and from wider social media.



Figure 1: Section of the EDCMOOC week 1 resources page showing embedded YouTube videos.

Thus the Coursera platform might be considered to be 'just the visible surface of a large realm of software, a complex amalgam of data structures, algorithms, packages, [and] protocols' (Dodge et al. 2006). The notion of a platform or course management system containing resources appears to be an inadequate description of the EDCMOOC arrangement. Two facets are important here. Firstly, that student engagement with these resources might be better understood in terms of movement between spaces, rather than the immobile absorption of content. Secondly, that this activity is a process of co-creation through which the course space is produced by EDCMOOC participants and the algorithms which operate beneath the surface of services such as YouTube. While the Coursera forum for week one discussions contained 56 threads and a total of 1,192 posts, the links to YouTube prompted by the embedded videos encouraged many students to shift their com-

ments elsewhere. As depicted in figure 2, the public domain videos utilised by the EDCMOOC began to be populated with comments specific to the course.

The course hashtag is clearly visible in many of the comments, filtered within YouTube to show 'top comments' (see fig 2). This demonstrates how EDCMOOC participants were moving between the Coursera platform and social media. For these students, engagement with the EDCMOOC was shifting and fluid; experiencing resources in different settings and participating in discussion across and between different channels. Research which attempts to make sense of such experiences and arrangements might therefore focus on 'flow and connectivity rather than location and boundary as the organising principle' (Hine 2000, p64). What I suggest to be significant in this example is not the centralised platform or the use of public social media, but the practices of moving between them. What this calls for is a shift away from thinking about these technologies as innately location specific or inherently distributed, and towards the idea that their spatial qualities are produced in practice.



Figure 2: Section from the comments in YouTube underneath the video 'Bendito Machine III', used as a resource in the EDCMOOC.

The idea that course space is shaped through the routines of engagement can be perceived in the structure of the You Tube page itself. Firstly, the comments section (see fig 2) is determined by a complex algorithm designed to be relevant to the individual logged in to You Tube (You Tube 2013). The algorithm determines 'relevance' according to 'the video's creator, popular personalities, engaged discussions about the video, and people in your Google+ Circles' (You Tube 2013). While providing sparse technical detail about how this algorithm actually operates, such descriptions point to complex functions that draw upon the Google plus platform, as well as a range of other You Tube users. This means that the arrangement of comments, and thus the spatial qualities of the You Tube page, are not static, but rather come together through multiple and contingent relations between the human users of Google Plus and You Tube, as well as the non-human algorithms which operate beneath the surface of the user interface. Dependent on so many variables, the precise structure of the comments will appear differently for each logged in user, and cannot thus be attributed exclusively to the intentions of the authors of the algorithm. Moreover, the 'social' and 'material' dimensions are not independent here; rather social networks and algorithms co-constitute one another. In the context of the EDC-MOOC, the comments section is a crucial part of the You Tube page, facilitating the kind of discussion promoted as the central activity of the course. However, as described here, the discussion space is not simply a display of dialogue between human participants, but also a shifting arrangement in which non-human algorithms play a significant part.

The entanglement of human user and non-human algorithm also manifests in the 'recommended videos' section of the You Tube page. This list of associated videos appears to the right of the video currently being viewed (see fig 3), and is determined using a broad range of data, including video meta-data, the previous activity of the logged-in user, as well as the previous behaviours of other You Tube users who also viewed the current video (Davidson et al. 2010).



Figure 3: Section from the 'Bendito Machine III' You Tube page showing recommended videos.

In this way, multiple contingencies structure the You Tube page differently depending on persistently shifting combinations of data and human behaviour. The overall You Tube page is thus not fixed, but produced through relations between the operation of algorithms and the activity of users. The significance of this can be seen in the 'recommended videos' section shown in figure 3. The recommended video at the bottom of the list shown is 'Inbox', a short public domain film that was also used as one of the resources for the EDC-MOOC. It is not believed that these videos were associated in any way before being included as resources in

the EDCMOOC, and therefore I suggest that the inclusion of 'Inbox' in the recommended videos of 'Bendito Machine III' demonstrates how the viewing behaviours of course participants have influenced the structure of the YouTube page. This is a salient example of the complex spatial arrangements offered by social media; structures which challenge one dimensional and reductionist views of technology (Chandler 2002), and foreground relational and sociomaterial understandings of educational space. The use of YouTube in the EDCMOOC demonstrates a notion of space, 'not as a static container into which teachers and students are poured, or a backcloth against which they act, but as a dynamic multiplicity that is constantly being produced by simultaneous practices-so-far' (Fenwick et al. 2011). The implications for education are that the use of social media de-centres human intention, and the spaces utilised for educational activity cannot be entirely controlled by teachers, students, or the authors of the software.

One of the foremost spaces of the EDCMOOC was the 'EDCMOOC News' blog aggregator (see fig 4). This bespoke system developed by the teaching team utilised a range of freely available web services to collate, combine and display posts from the personal and distributed blog sites of individual participants. Blogging was considered to be one of the primary activities in the EDCMOOC, and rather than being secondary to the teacher-curated material, participant responses were promoted as a central resource (author removed for peer review 2014). In this way, the EDCMOOC News constitutes an important space for the discussion of centralisation, distribution and aggregation.



Figure 4: The EDCMOOC News WordPress site, showing two posts aggregated from distributed EDCMOOC participant blogs.

Encouraging students to blog in public spaces was deemed important as way of distributing course content and opening the possibilities for connections with people outside of the course. This kind of distribution reflects the pedagogy of networked learning in which knowledge construction is suggested to be 'located in the connections and interactions between learners, teachers and resources, and seen as emerging from critical dialogues and enquiries' (Ryberg et al. 2012, p45). Additionally, personal blogs were thought to be important as spaces which students might feel some ownership of the writing process, outside of the confines of the Coursera platform. However the advantages of these public contributions were countered by the prospect that dispersed content would be difficult to locate amongst the plethora of personal blogs and sites on the web. For this reason a blog aggregator was developed, drawing upon successful examples from other MOOCs (see Downes et al. 2011). With such a system, the advantages of both distribution and centralisation were thought to be retained.

The EDCMOOC News utilised three principle functions: a Google spreadsheet behind a web form which allowed participants to submit the RSS feed to their blog; 48 individual Yahoo Pipes, each fetching 20 feeds from the Google spreadsheet, filtering posts according to publishing time and the presence of the course hashtag (#edcmooc), and sorting posts according to date; and a WordPress instance using the FeedWordPress plugin to display aggregated posts (see fig 4). The EDCMOOC News displayed 1,340 posts during the first instance of the course (Scott 2013). Participants submitted 931 RSS feed URLs to the Google spreadsheet, and aggregated posts came from 300 of these (Scott 2013). Google analytics indicated that the EDCMOOC News site was visited close to 1,430 times by 997 unique visitors (Scott 2013).

The purpose of this analysis of the EDCMOOC News is to counter the tendency to 'black box' technology (Mackenzie 2009, Fenwick & Edwards 2010, Edwards & Carmichael 2012), in other words to mask the relations through which technologies operate and consider them simply as objects in themselves. From this perspective the EDCMOOC News is not a static or linear broadcast of course information, but a set of dependencies and relations that entwine participants and algorithms in the production of educational space.

Significantly, a number of processes defined the order in which posts appeared on the WordPress site (see fig 4). Firstly, Yahoo pipes limited posts to those with a published date within 72 hours of the process being triggered (Scott 2013), limiting the collection of posts to the most recent. Secondly, WordPress displayed aggregated posts in pages, limited to 100 posts each. These processes meant that aggregation was hierarchical rather than egalitarian, a suggestion bolstered by a statistical analysis of EDCMOOC News visitors. Scott states '[h]alf of the visits to the site were from people who had visited before and almost everyone only visited the first page of the site' (2013). This privileging of the first page of the EDCMOOC News meant that the first 100 aggregated posts were much more likely to be viewed and commented on, thus entering into the kinds of dialogue intended for this activity. However, the processes of aggregation also excluded many posts from the prospect of interaction and dialogue by displaying them in pages not immediately visible to visiting participants. Figure 5 shows the rate at which new posts were added to the EDCMOOC News WordPress site, indicating high volumes being aggregated roughly every 48 hours, with three processes exceeding 100 posts at a time. This demonstrates the speed at which contributions to the EDCMOOC News would be relegated to lesser pages of the WordPress site, and thus away from the space of majority engagement and interaction. For an EDCMOOC participant, having your post appear on the front page of the EDCMOOC News would be significant, with Google Analytics indicating that the site was visited 1,430 times by 997 unique participants (Scott 2013), presenting many opportunities for peer engagement. However, as we have seen, there is a complex arrangement of algorithmic processes and human attention that contributes to the possibility that a post will be read. These contingencies include the time at which the post was published, the correct execution of the particular Yahoo Pipe involved, as well as its corresponding FeedWordPress RSS fetching process. Given the global distribution of EDCMOOC participants (MOOCs@Edinburgh Group 2013), the likelihood of contributions reaching the front page of the EDCMOOC News is increased if a participant is working within the same timezone as the FeedWordPress process that populates the site (in this case GMT). In this way, the geographical distribution of participants also influences the production of the EDCMOOC News front page. It is thus a complex performance of human contribution, algorithmic process, and spatial ordering.

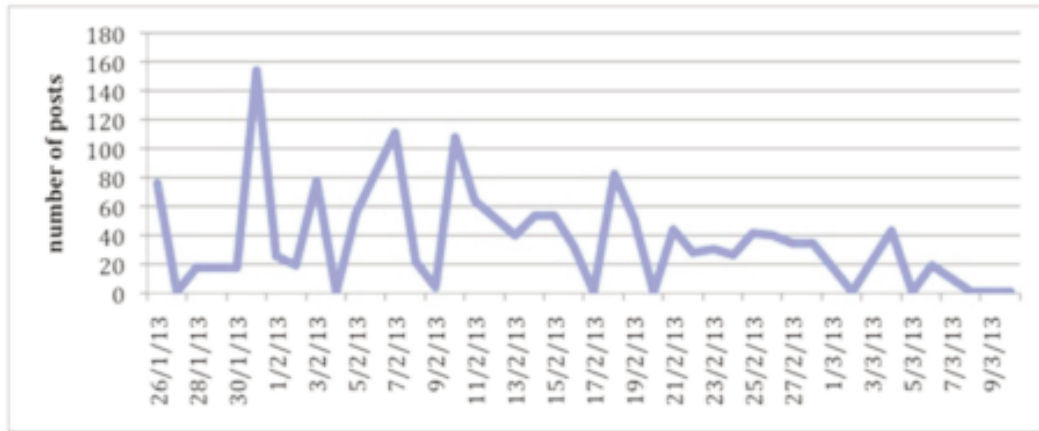


Figure 5: A graph showing (Scott 2013) <http://edcmoocteam.wordpress.com/2013/04/09/nothing-new-under-the-sun/>

Furthermore, considered as a central resource in the EDCMOOC, the EDCMOOC News must be perceived, not as a stable and definitive representation of course themes, but rather as a shifting space of knowledge, produced by a fluctuating body of human contributors and a bespoke mixture of non-human aggregation processes. Considered on its own, the first page of the EDCMOOC News constitutes a volatile and troublesome source of knowledge for the course. Its contents at any one time cannot be reduced exclusively to the intentions of any single individual (whether teacher or software designer), nor to the collective group of human beings involved. Rather, the body of knowledge that is the EDCMOOC News is determined by a number of interrelated and co-constitutive factors that are human and non-human, social and algorithmic. Considered as knowledge, it would be difficult to ascertain precisely what such an assemblage would therefore represent. It is suggested here that a more useful interpretation would be a non-representational, social and material enactment of knowledge (Edwards 2010). Such an interpretation reflects the call for a 'shift from epistemology to ontology, from representation to performativity, agency and emergence' (Pickering 2002, p414) in considerations of knowledge.

This analysis has demonstrated the need for a shift from 'the universal to the specific and material' (Fenwick et al. 2011, p159) when it comes to considering the implications of distributed, aggregated, centralised or networked educational spaces. It is with such approaches that I suggest continued research can identify the complex contingencies that shape and produce educational space, and acknowledge the agency and influence of code in education.

6. Conclusion

In a field where incentives for cloud computing are driven by perceived economic benefits (Mircea & Andreescu 2011, Sultan 2010), this paper calls for sociomaterial theory to explore the broader implications of digital, online and networked education. The view that technology simply generates efficiency savings is tied up with determinist perspectives on technology (Kanuka 2008), and limits how we can understand the relationships between social and material factors. The increasing use of both distributed and centralised educational content needs to be accompanied by robust theorisations and critiques of the systems used in order to highlight the agential influence of the digital. The sociomaterial perspectives outlined in this paper call into question the dominant view of technology as a 'tool' of distribution or aggregation. This instrumentalist perspective situates agency and intentionality exclusively within the domains of the human users, and denies the possibility that the complex algorithms and codes of the web shape and influence educational space. Rather than assuming that educators can unproblematically control web services and social media, we may need to recognise that the growing proliferation of algorithms and code act in ways that cannot be predicted. Referring to Mackenzie (2009) Dodge et al. describe 'spaces in flux that cannot be mapped in certain terms, but can only

be guessed at in probabilistic ways' (2006), and it is such considerations that continued educational research may need to adopt.

Fenwick et al. contend that '[c]yberspaces are therefore not merely a new educational tool, but can spatially reconfigure the forms of knowing, sociality and subjectivity enacted through educational (en)counters' (2011, p157). Distributed or aggregated educational spaces are not simply better or worse for learning. They qualitatively change the space in ways shaped by digital systems, through procedures that are irreducible to human intention or agency. The implications for education are that many social media and web services, as well as MOOC platforms such as Coursera, are being controlled, not by educators, but by large multinational for-profit companies. The educational use of such systems therefore constitutes a persistent negotiation and tension between their perceived pedagogical value, and the interests of profit. Ideas about movement and transition between different spaces is a challenge to the practices of data mining assumed to be one of the drivers behind Coursera, edX and Udacity (Watters 2013). However, shifting educational activity into the public domains of social media is not an escape from data capture, and the algorithmic properties of YouTube described previously are representative of further procedures intended to extract profit from user activity. Therefore, while Kanuka suggests that 'the debate over whether or not we need to prepare our learners for a pervasively networked world revolves around what types of persons we expect our education systems to produce' (Kanuka 2008, p92), I contend that such persons need to be able to understand and recognise the ways that technology and human, social and material, are deeply entwined.

Notes

(1) Figure 2 shows 'top comments' without a user logged in, therefore not drawing upon Google plus circles (YouTube 2013).

(2) During the first delivery of the EDCMOOC in January 2013

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